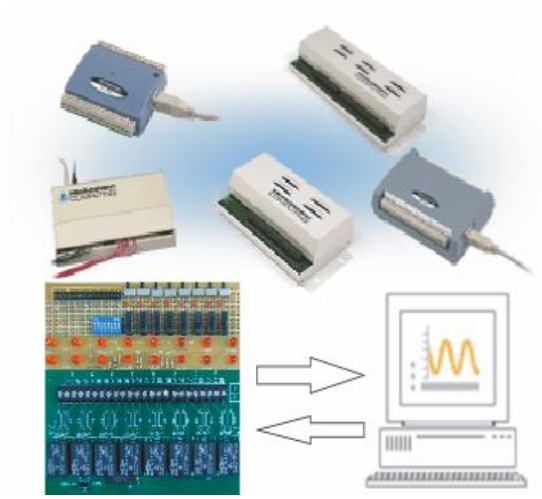
# USB9501-14 DAQ Kits

## See Your Testing Results Today



## Applications

- Use USB DAQ module to measurement data
- Collection measurement data to make analysis
- Waveform display， analysis and record
- Waveform or data reports are easy to create

## Features

- Compatible with Windows O/S
- USB bus configuration is easy to hand carry and use
- Plug & play DAQ record software
- Multifunction I/O for data measurement and record
- Quick install with plug & play USB interface
- DAQ development board
- 8 Analog channels， 12；14 or 16bit resolution

USB9501 Series is design for student or junior engineer DAQ kits。 It provides low cost and high quality DAQ testing equipment includes hardware， software and accessories。

USB9501 help beginner learning DAQ theory and DAQ application。 User can use example program， library and DAQ hardware to running on the PC or notebook， do the DAQ data collection、DAQ recording、DAQ control and verify DAQ software function testing。

User can use USB9501 powerful hardware、software function to design their own DAQ application or use DAQ development board to design their own DAQ circuit。 Reduce design time for complex measurement and testing。

Use USB9501 series SAQ kits， let you immediately see the measurement result and increase your ability for the data acquisition (DAQ)、DAQ recording and DAQ circuit design。

Handheld USB DAQ device provide virtual instruments function like DC power supply， function generator， multi-meter and oscilloscope。 Let you handle 4 different virtual instruments control design way and easy convenient operation style。

For high speed sample rate， high accuracy measurement， more DAQ channels and A/D D/A signal compatibility， Please check measurement computer other high performance USB DAQ device。 www.mccdaq.com



**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

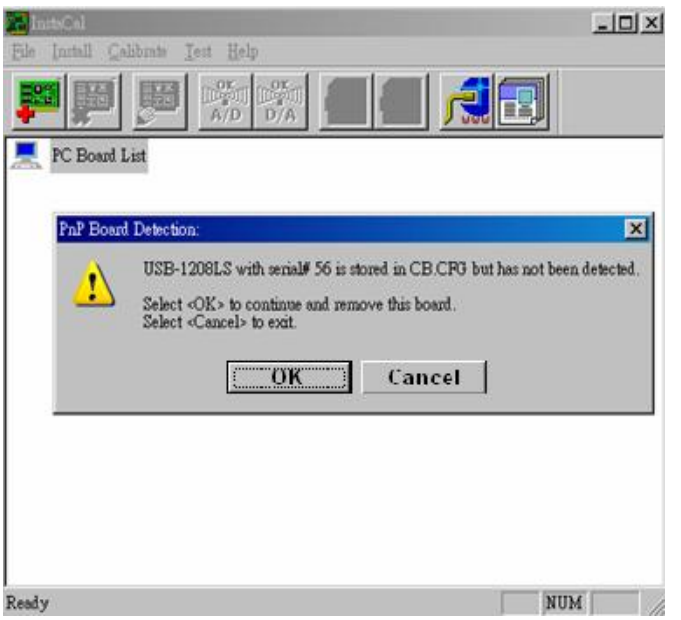
# Install USB9501-12 DAQ module device driver

Step1: Run Setup.exe on the CD-ROM directory \SoftWIRE，follow the install procedures on the window。

Step2: Put USB connect cable one site to your USB DAQ module ， another site connect to your PC。 Now your PC will auto-detect your USB device。

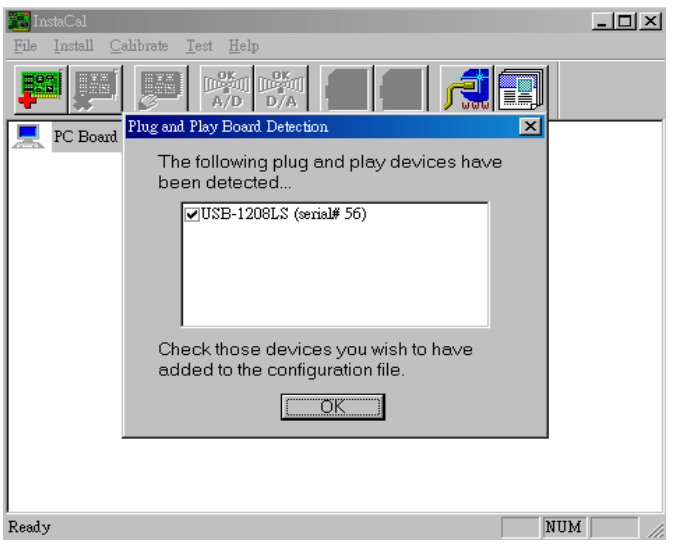
Step3: Click〔Start〕→ then choose〔Programs〕→〔Measurement Computing〕→〔InstaCal〕，Now the InstCal will appear following window, That is mean your PC is detect your USB DAQ module。

Please Click 〔Ok〕




Step4: After you press click〔OK〕button，It will list all the hardware that PC detect。

Please Click 〔Ok〕

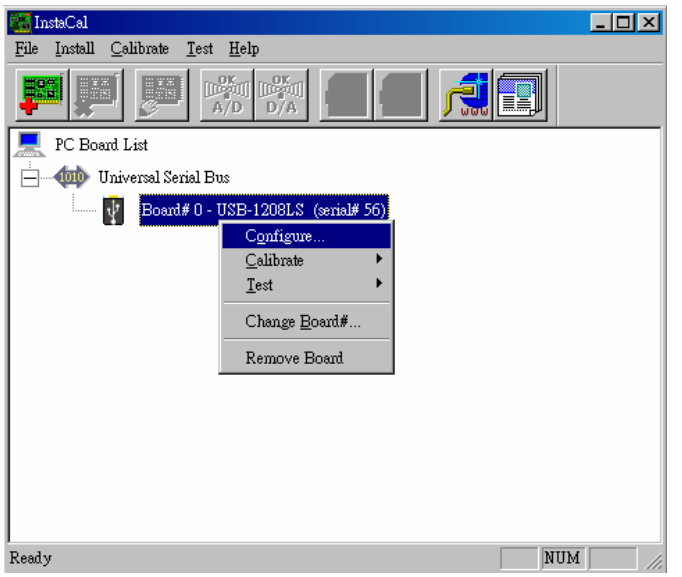

InstaCal
File Install Calibrate Test Help
PC Board
Plug and Play Board Detection
The following plug and play devices have been detected...
USB-1208LS (serial# 56)
Check those devices you wish to have added to the configuration file.
OK
Ready
NUM



**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

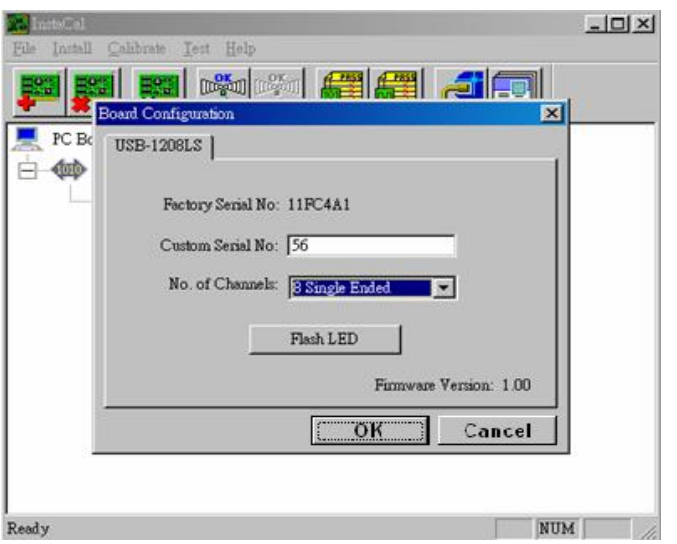
Step5: After you click〔OK〕button，InstCal will put USB DAQ Module device driver to the PC。

Step6: Now Right-click your DAQ module，Choose Configure。



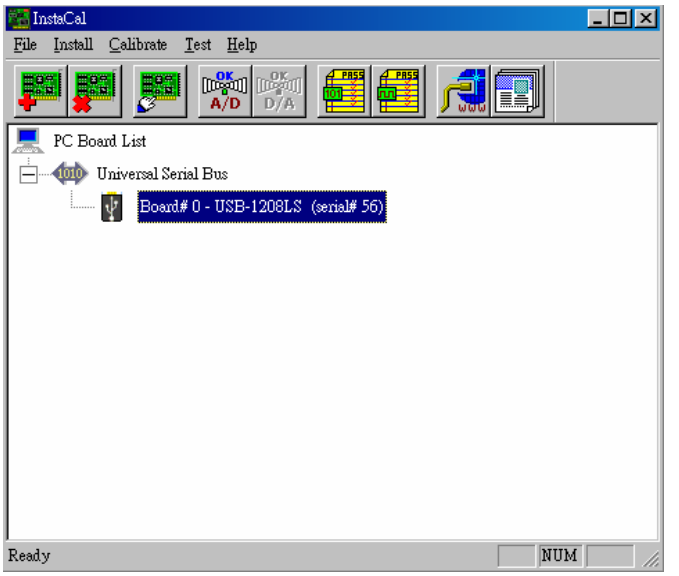

Step7: Change No. of Channels to be 8 Single Ended

Step8: Please Click 〔Ok〕






**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com




Step9: Now you need choose what kind of software you want to use。

Step10: If you need use Microsoft Visual Basic、 C/C++ or Delphi to develop your own API。Please go to page 5 then go to page 14。

Step11: If you need immediately to see the waveform，Please use NI LabView，to design your own Graphic Programming interface。Please go to page 7，then go to page 14 and page 20。

Step12: If you need use Microsoft Visual Studio .NET 2003。Please go to page 8，then go to page 14 and page 23。

Step13: If you need use EXCEL，TXT or BITMAP FILE to record your DAQ data。Please go to page 10，then go to page 14 and page 18。

Step14: If you need use MATLAB R2006a or latest version。Please go to page 15，then go to page 14 and page 15。



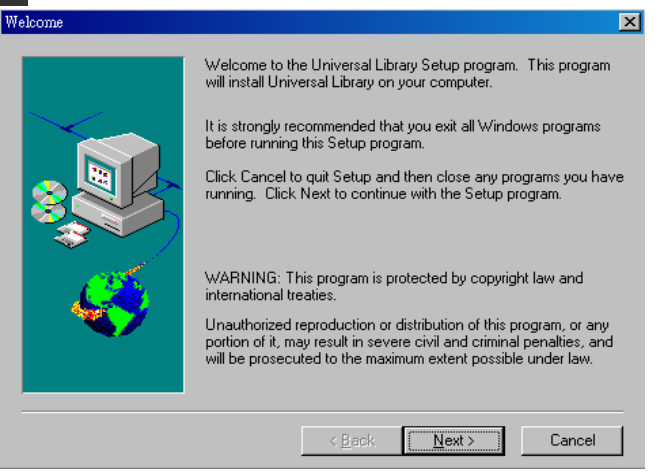
**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

# Install UNIVERSAL LIBRARY

Step1: Please install Microsoft Visual Basic，C/C++ or Delphi first。

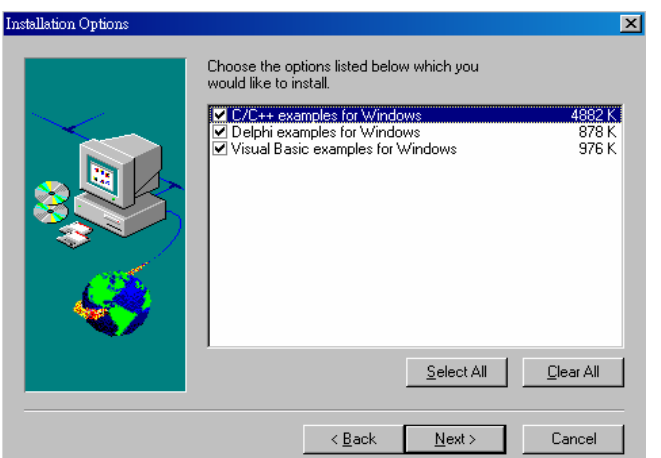
Step2: Run Setup.exe on the CD-ROM directory \Unilib\Product\disk1。

Please Click 〔Next〕


Welcome
Welcome to the Universal Library Setup program. This program will install Universal Library on your computer.
It is strongly recommended that you exit all Windows programs before running this Setup program.
Click Cancel to quit Setup and then close any programs you have running. Click Next to continue with the Setup program.
WARNING: This program is protected by copyright law and international treaties.
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
< Back
Next >
Cancel

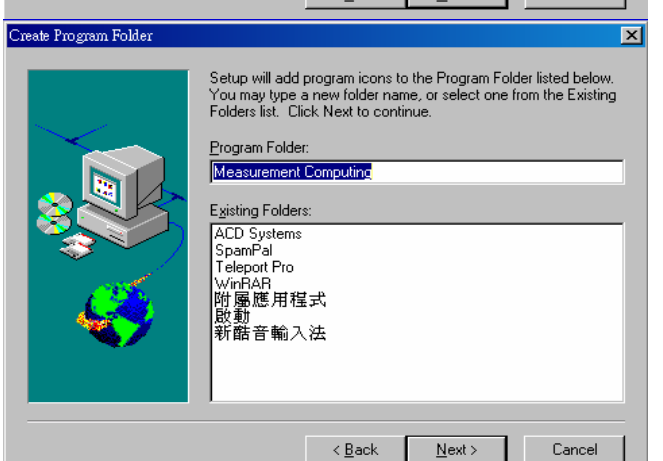
Step3: After you click Next，Please choose your program development environment support。

Please Click 〔Next〕


Installation Options
Choose the options listed below which you would like to install.
C/C++ examples for Windows 4882 K
Delphi examples for Windows 878 K
Visual Basic examples for Windows 976 K
Select All
Clear All
< Back
Next >
Cancel

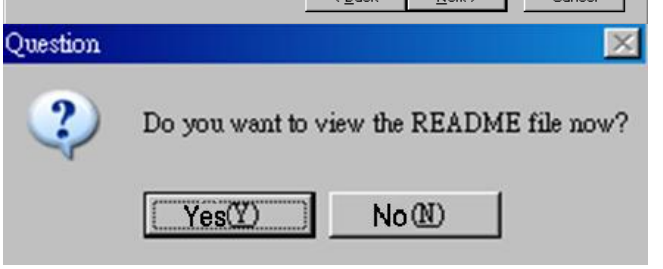
Step4: After you click Next，please select your Programs directory。

Please Click 〔Next〕




Step5: After you click Next，there will appear a window let you choose if you need read README file。

Please Click 〔Yes〕



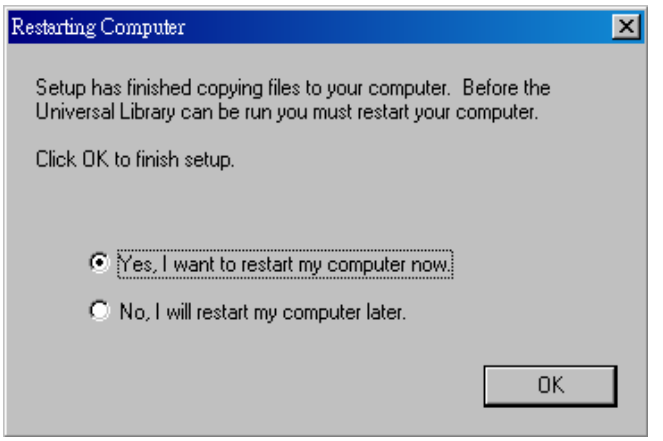



**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

Step6: After you click Next，There will appear a window let you choose if you need restart computer。

Please Select Yes

Then，Please Click 〔OK〕


Restarting Computer
Setup has finished copying files to your computer. Before the Universal Library can be run you must restart your computer.
Click OK to finish setup.
Yes, I want to restart my computer now.
No, I will restart my computer later.
OK

Step7: Right-click Start then click Explorer, you can find out your example program In the C:\MCC。



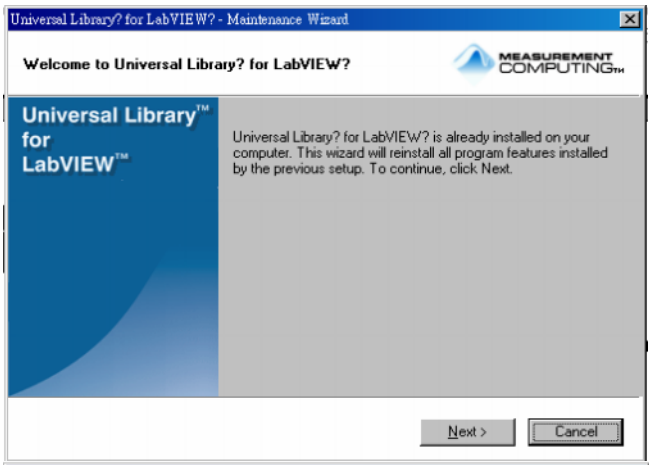
**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

# Install UNIVERSAL LIBRARY for Labview

Step1: Please install National Instrument LabView first。

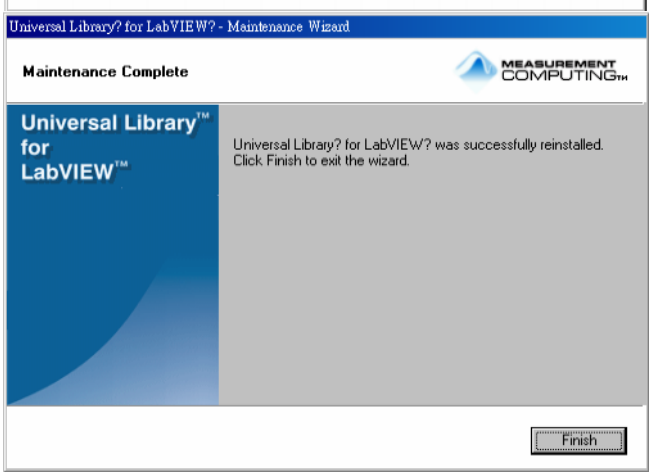
Step2: Run Setup.exe on the CD-ROM directory \UL for LabView。

Please Click 〔Next〕


Universal Library? for LabVIEW? - Maintenance Wizard
Welcome to Universal Library? for LabVIEW?
MEASUREMENT COMPUTING
Universal Library™ for LabVIEW™
Universal Library? for LabVIEW? is already installed on your computer. This wizard will reinstall all program features installed by the previous setup. To continue, click Next.
Next >
Cancel

Step3: After you click Next，please select your Programs directory。

Please Click 〔Finish〕


Universal Library? for LabVIEW? - Maintenance Wizard
Maintenance Complete
MEASUREMENT COMPUTING
Universal Library™ for LabVIEW™
Universal Library? for LabVIEW? was successfully reinstalled. Click Finish to exit the wizard.
Finish



**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

# Install SoftWIRE for Microsoft .NET 2003

Step1: Please install Microsoft Visual Studio .NET 2003 first。

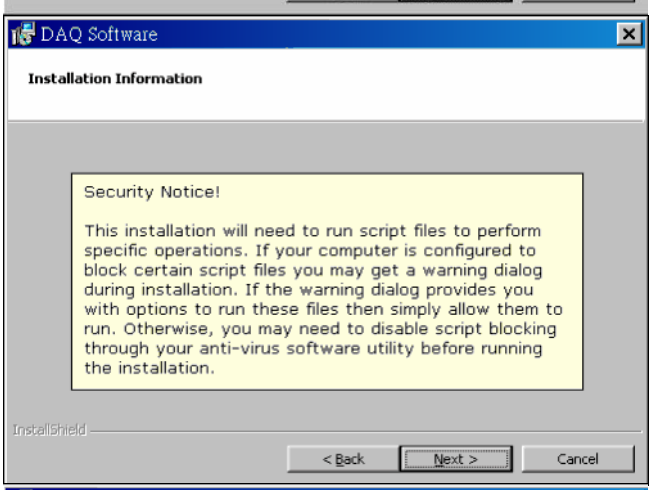
Step2: Run setup.msi on the CD-ROM directory \SoftWIRE 。After appear welcome window。

Please Click 〔Next〕

DAQ Software
Welcome to the installation for DAQ Software
This installation will install the following products on your computer. If you currently have Visual Studio open, please close it before continuing with this installation. To continue, click Next.
InstaCal
TRACER DAQ
SoftWIRE
SoftWIRE for Visual Studio.NET
WARNING: This program is protected by copyright law and international treaties.
< Back
Next >
Cancel

Step3: After you click Next，Please close your virus protection program temporary。

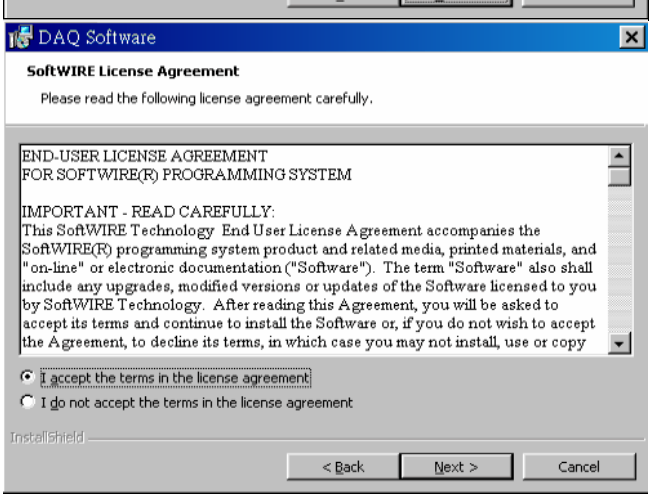
Please Click 〔Next〕


DAQ Software
Installation Information
Security Notice!
This installation will need to run script files to perform specific operations. If your computer is configured to block certain script files you may get a warning dialog during installation. If the warning dialog provides you with options to run these files then simply allow them to run. Otherwise, you may need to disable script blocking through your anti-virus software utility before running the installation.
InstallShield
< Back
Next >
Cancel

Step4: After you click Next，The License agreement window will appear。

Please Choose I accept

Please Click〔Next〕

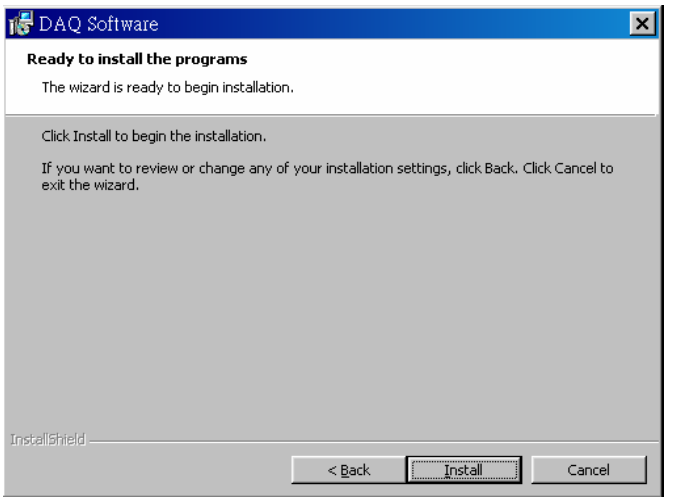

DAQ Software
SoftWIRE License Agreement
Please read the following license agreement carefully.
END-USER LICENSE AGREEMENT
FOR SOFTWIRE(R) PROGRAMMING SYSTEM
IMPORTANT - READ CAREFULLY:
This SoftWIRE Technology End User License Agreement accompanies the SoftWIRE(R) programming system product and related media, printed materials, and "on-line" or electronic documentation ("Software"). The term "Software" also shall include any upgrades, modified versions or updates of the Software licensed to you by SoftWIRE Technology. After reading this Agreement, you will be asked to accept its terms and continue to install the Software or, if you do not wish to accept the Agreement, to decline its terms, in which case you may not install, use or copy
I accept the terms in the license agreement
I do not accept the terms in the license agreement
InstallShield
< Back
Next >
Cancel



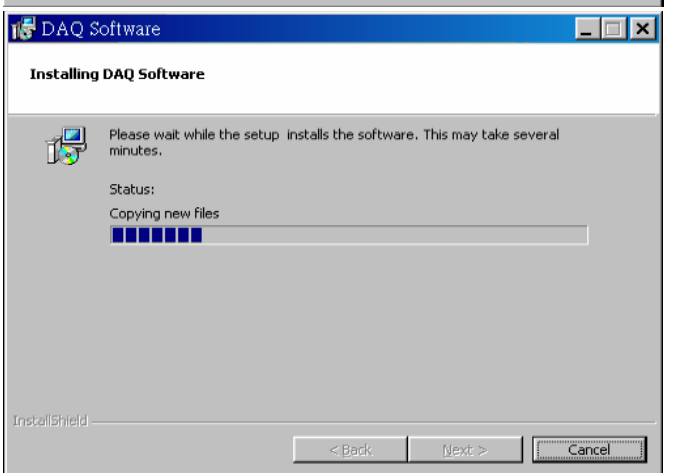
**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

Step5: After you click Next，the ready to install window will appear。

Please Click Install

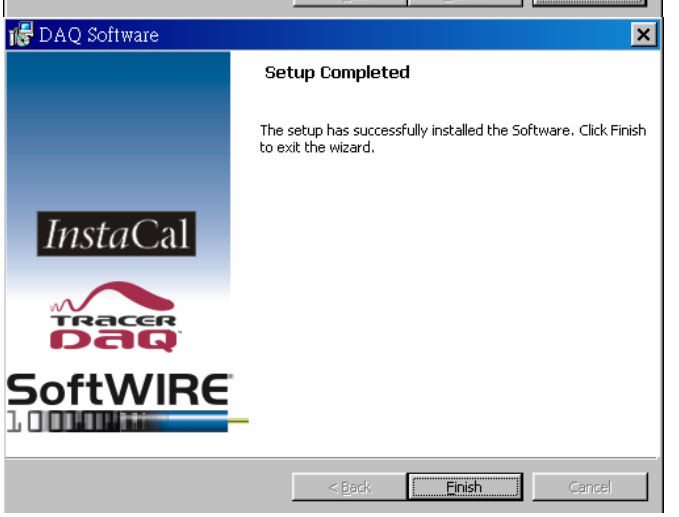

DAQ Software
Ready to install the programs
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

Step6: After you click Install，Will appear install status window，Please don't click the cancel button。




Step7: After Install finish，will appear install finish window。

Please Click Finish



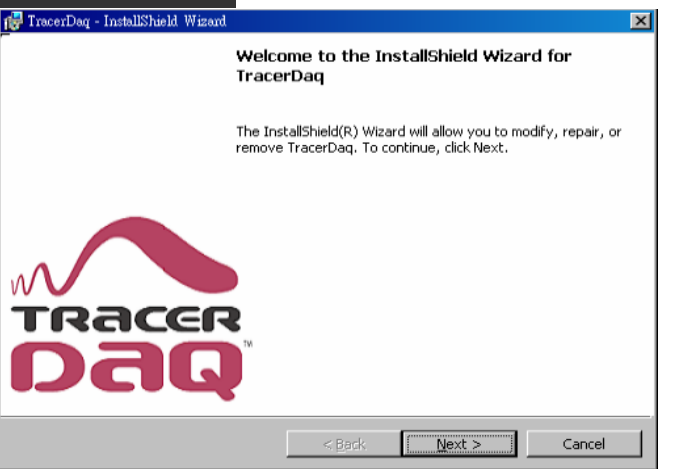



**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

# Install TracerDaq recording DAQ data

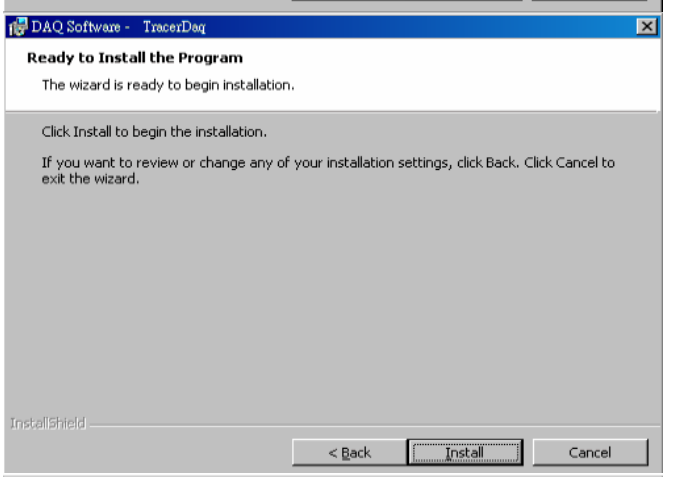
Step1: Run TracerDaq.msi on the CD-ROM directory \TracerDaq。After appear welcome window。

Please Click 〔Next〕


TracerDaq - InstallShield Wizard
Welcome to the InstallShield Wizard for TracerDaq
The InstallShield(R) Wizard will allow you to modify, repair, or remove TracerDaq. To continue, click Next.
TRACER DAQ
< Back
Next >
Cancel

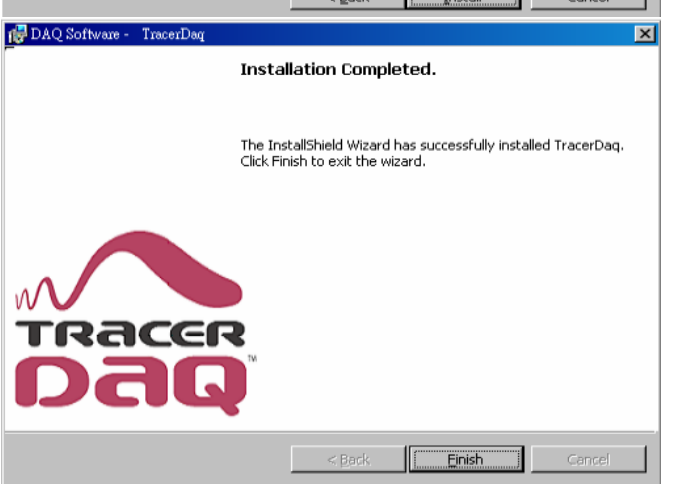
Step2: After you click Next，Please click Install button。

Please Click 〔Install〕


DAQ Software - TracerDaq
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

Step3: After install finish，will appear install finish window。

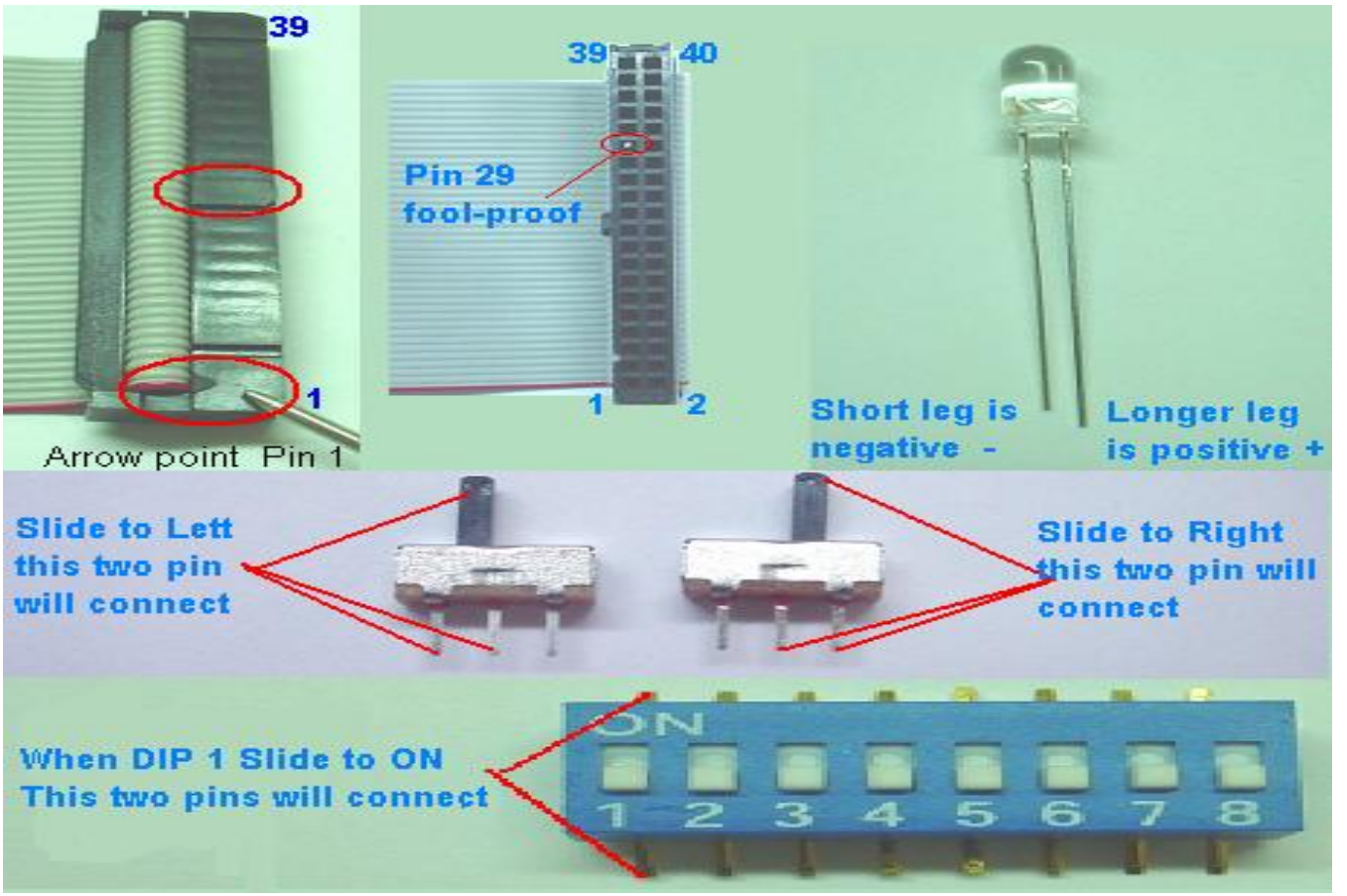
Please Click Finish

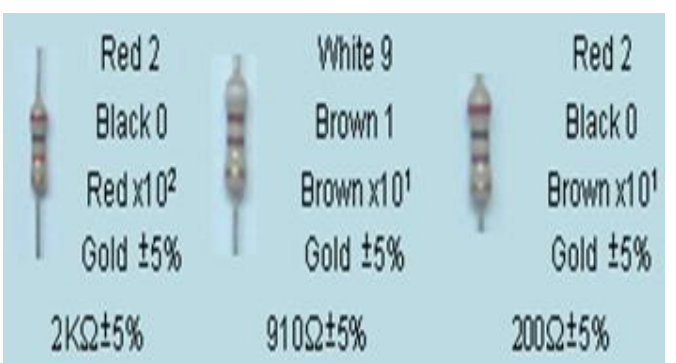





**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

# introduce USB9501-12 development board component



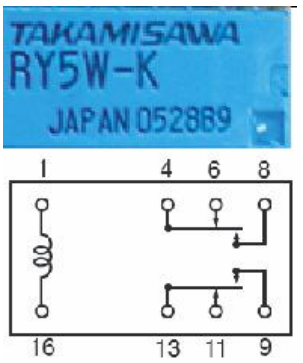




Color code resistor
Color Value： Black 0，Brown 1，Red 2，Orange 3，Yellow 4，Green 5，Blue 6，Violet 7，Grey 8，White 9
Color tolerance：Gold ±5%，Silver ±10%
1st band mean resistor value first number
2nd band mean resistor value second number
3rd band mean resistor value multiplier to 10
4th band mean resistor tolerance

LED generate IR light source，IR Sensor receive IR light，200Ω resistor is use to protect LED，Use Analog Input Bit 0，when IR light source is cut off，The IR Sensor will response voltage change。

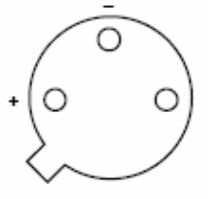


**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com




When Digital Output Bit 0 is high，
Pin 1 to 16 coil will work，
Pin 4 and 8 will connected，
Pin 13 and 9 will connected。

When Digital Output Bit 0 is low，
Pin 1 to 16 coil will not work，
Pin 4 and 6 will connected，
Pin 13 and 11 will connected。

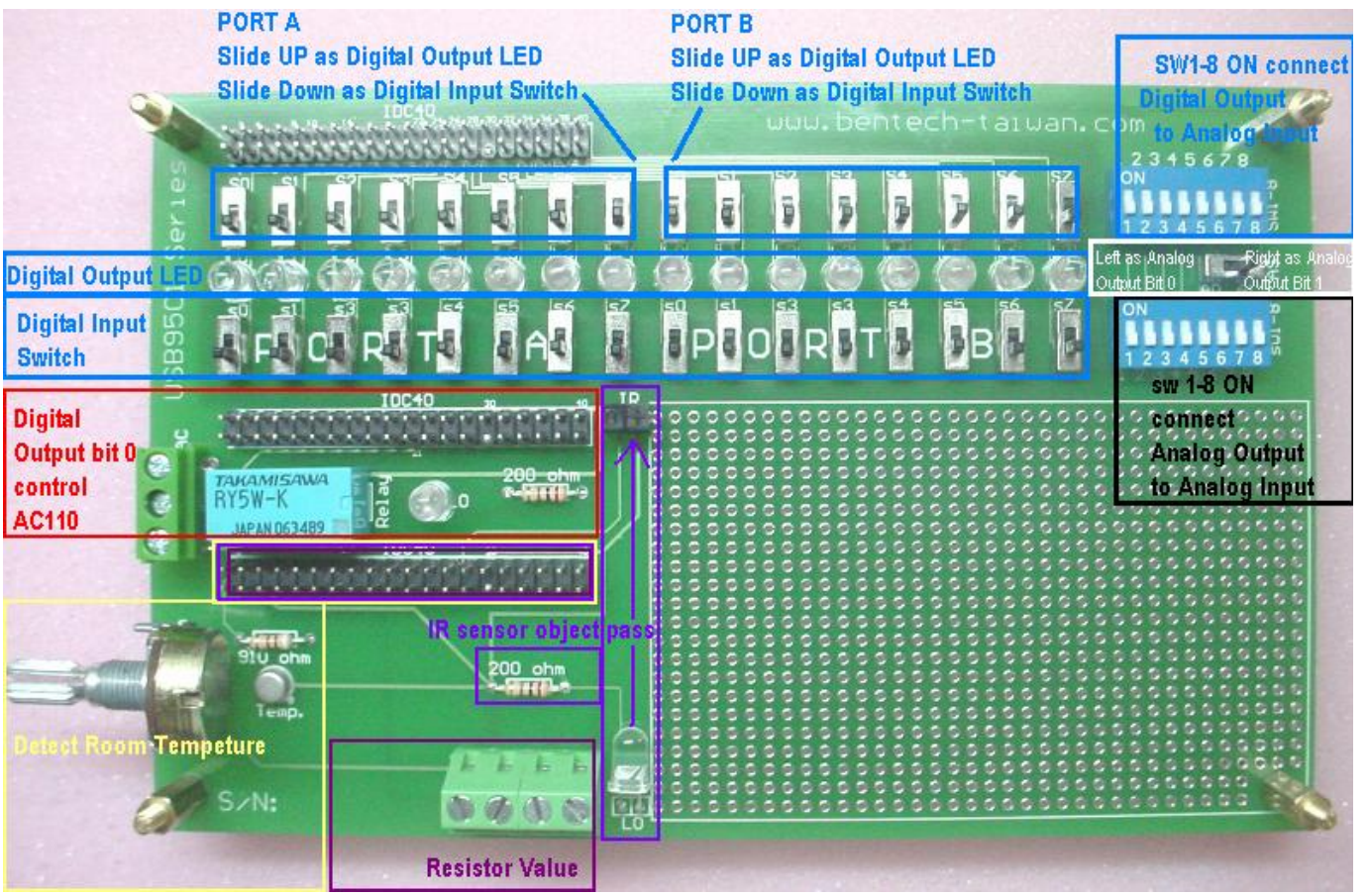



AD590 current type temperature sensor IC

Fixed value resistor + variable resistor

When current path through the resistor will generate voltage (V=I*R)

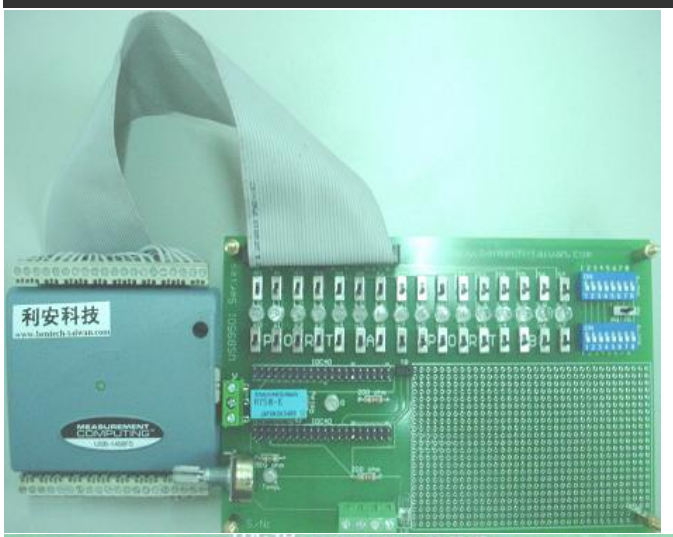
Use Analog Input Bit 1
to measurement voltage change with temperature and variable resistor

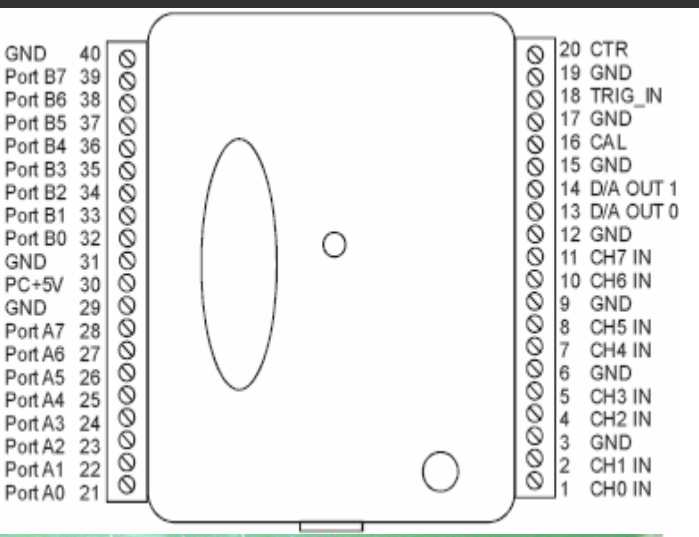


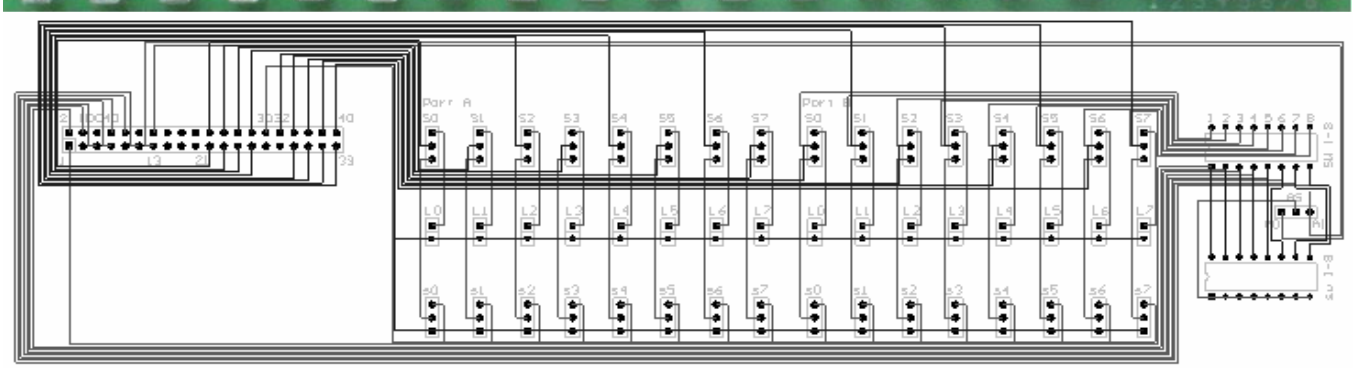



**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

# USB9501-12 development board circuit and component BOM







## Development board component description

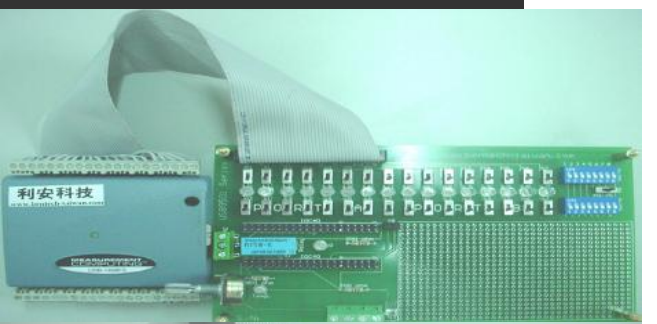
| Component Name | Port A | Port B | Function | Q'ty |
|---|---|---|---|---|
| Slide Switch (Vertical ) | S0～S7 | S0～S7 | Select Digital Output or Digital Input | 16 |
| LED | L0～L7 | L0～L7 | Digital Output Bit 0-7 | 8 |
| Slide Switch (Vertical ) | s0～s7 | s0～s7 | Digital Input Bit 0-7 | 8 |
| Dip Switch （8 way ） | SW 1-7 | | Digital Output Bit 0-7 connect to Analog input Bit 0-7 | 1 |
| Slide Switch (horizontal ) | AS | | Select Analog output 0 or Analog output 1 | 1 |
| Dip Switch （8 way ） | Sw 1-7 | | Analog output 0 0/1 connect to Analog input Bit 0-7 | 1 |
| 40 PIN Header | IDC40 | | Connect USB DAQ module signal PIN 1~40 | 1 |



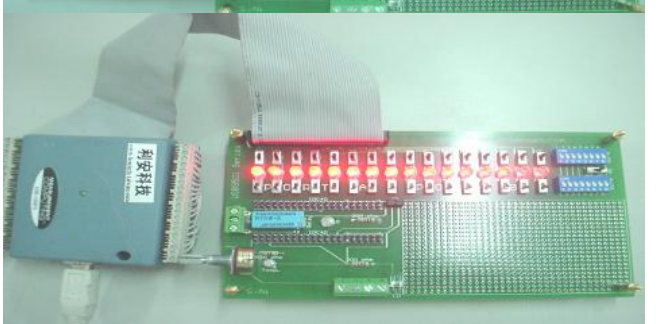
**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

# Connect USB DAQ module with development board

Step1: Connect 40 pin cable to the 40 pin header on development board，【Be Careful】The 40 pin cable red line should be on left side，The wrong direction maybe cause short circuit。

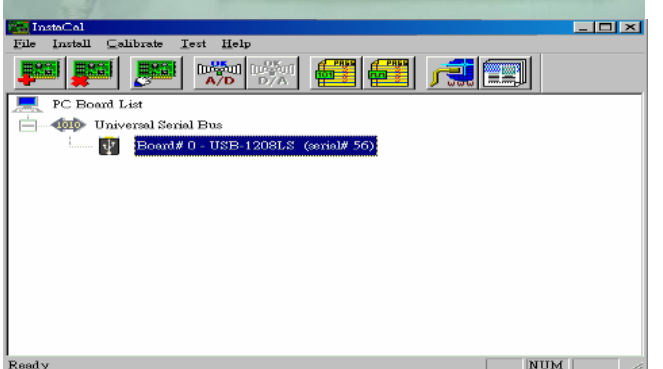


Step2: Put USB cable one sit to the USB DAQ module，Another side connect to PC。

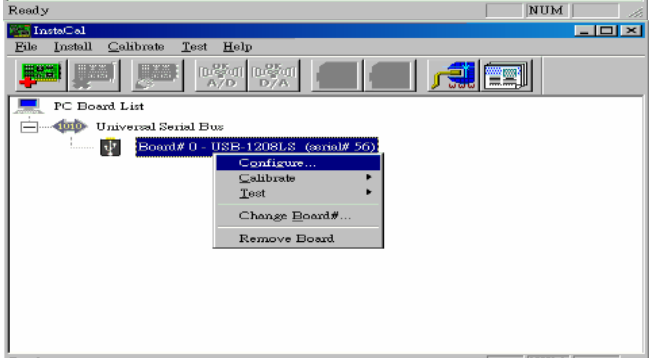


Step3: Click〔Start〕→ then choose〔Programs〕→〔Measurement Computing〕→〔InstaCal〕

Step4: Make sure that InstaCal detect the USB DAQ module。

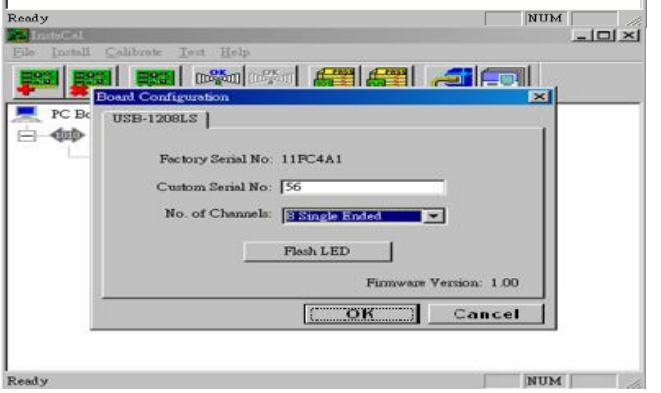



Step5: Now Right-click your DAQ module，Choose Configure




Step6: Change No. of Channels to be 8 Single Ended。

Please Click 〔Ok〕





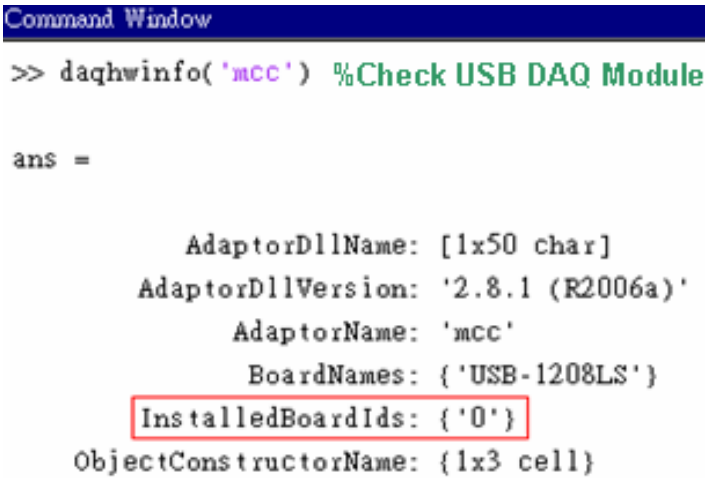

**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

# Run DAQ Kits on the MATLAB

Step1: When you on the MATLAB window，Please key in following command on the Command Window，then press Enter Key。(PS. You can direct copy following command to your MATLAB Command Window)

daqhwinfo('mcc') %Check USB DAQ Module

Step2: You should can see same message like right picture。




Step3: If there appear error message，you will need do following procedure

3-1. Quit MATLAB.
3-2. Find the following ini file： $MATLAB\toolbox\daq\daq\private\mwmcc.ini (where $MATLAB is the MATLAB root directory on your machine, as returned by typing matlabroot at the MATLAB Command Prompt.)
3-3. Make a back-up copy of this file to mwmcc.ini.old.
3-4. Copy the attach file mwmcc.ini on the CD-ROM directory \Matlab to the $MATLAB\toolbox\daq\daq\private\ directory
3-5. Right-Click mwmcc.ini change the read-only attributes is off。
3-6. Please key in following command on the MATLAB Command Window，then press Enter Key。

daqregister('mcc') %Register USB DAQ Module



**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

Step1: Put the 16 Slide Switch (S0-S7) down on the top of development board，as Digital Input，Put the 16 Slide Switch (s0-s7) Up/Down to control Digital Input High/Low。

Step2: Following command let you setting Digital I/O as the Digital Input。

```
dio = digitalio('mcc',0);   %Initial Digital I/O
addline(dio,0:7,0,'in')   %Use Digital Port0 as Input
addline(dio,0:7,1,'in')   %Use Digital Port1 as Input
getvalue(dio)   %Show the Digital Input value
```

```
Command Window
>> getvalue(dio)        %Show the Digital Input value

ans =

  Columns 1 through 11

     0     0     0     0     0     0     0     0     1     1     1

  Columns 12 through 16

     1     1     1     1     1
```

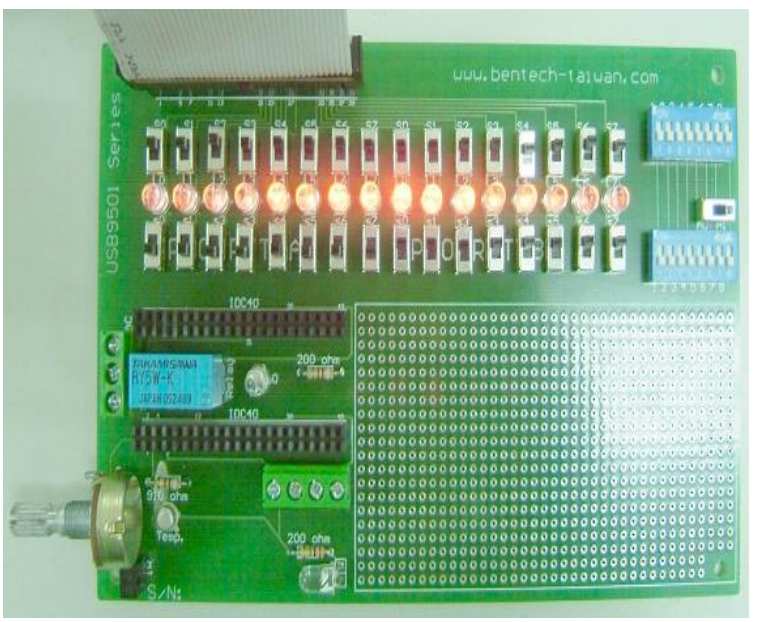
**You can change 16 Slide switch (s0-s7) under LED on the development board。**

```
getvalue(dio)   %Input value will changed by switch(s0-s7)
clear   %Testing finish，clear all the variable
```

Step1: Put the 16 Slide Switch (S0-S7) Up on the top of development board，as Digital Output，to control LED。

Step2: Following command let you setting Digital I/O as the Digital Output。

```
dio = digitalio('mcc',0);   %Initial Digital I/O
addline(dio,0:15,'out')   %Use Digital I/O as Output
pval = [1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1];   %Fill 1 to the pval array (Total 16 bit)，1/LED on/TTL high
putvalue(dio,pval)   %Put array pval to Digital Output
pval = [0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0];   %Fill 0 to the pval array (Total 16 bit)，0/LED off/TTL low
putvalue(dio,pval)   %Put array pval to Digital Output
clear   %Testing finish，clear all the variable
```





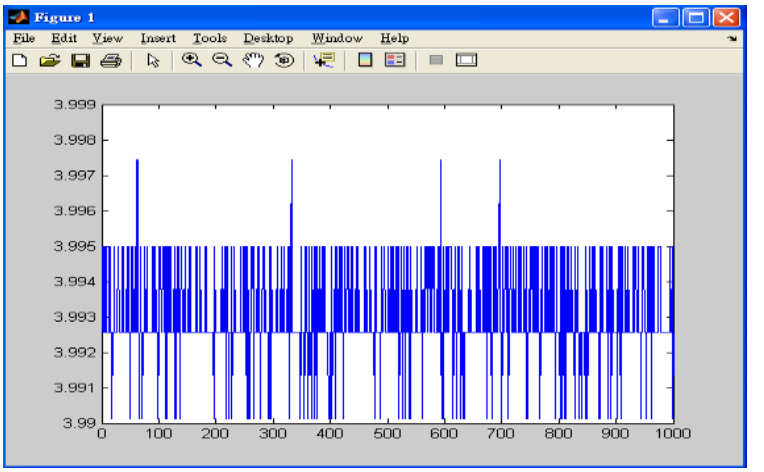

**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

Step1: Put the Dip Switch (SW 1-8) Off，Avoid Analog Output connect to the Digital Output。

Step2: Put the Dip Switch (sw 1-8) On，Let Analog Output connect to the Analog Input。

Step3: Put Slide Switch (AS) (horizontal) to the left (A0)，Switch Analog Output as Analog Output bit 0。

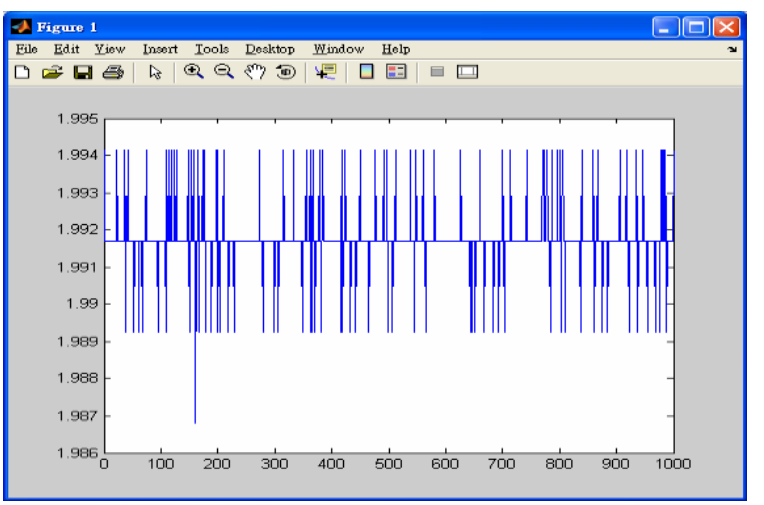
Step4: Following command let you control Analog Output and Analog Input。




```
ao = analogoutput('mcc',0);   %Initial Analog Output
addchannel(ao,0)   %Add Analog Output Channel 0
putdata(ao,4)   %Set Analog Output Channel 0 Volt.=4V (Maximum Voltage is 4V)
start(ao);   %Start Analog Output Channel 0
ai = analoginput('mcc',0);   %Initial Analog Input
addchannel(ai,0);   %Add Analog Input Channel 0
start(ai);   %Start Analog Input Channel 0
data1 = getdata(ai);   %Put Analog Input Channel 0 value to the data1
plot(data1)   %Put the data1 value to the waveform plot
```

Result is like Right-Top Picture. (Accuracy < ± 0.1 Volt.)

Then we can change Analog Output Voltage be 2V。




```
putdata(ao,2) %Set Analog Output Channel 0 Volt.=2
start(ao);   %Start Analog Output Channel 0
start(ai);   %Start Analog Input Channel 0
data1 = getdata(ai);   %Put Analog Input Channel 0 value to the data1
plot(data1) %Put the data1 value to the waveform plot
```

Result is like Right-Bottom Picture. (Accuracy < ± 0.1 Volt.)

```
clear   %Testing finish，clear all the variable
```

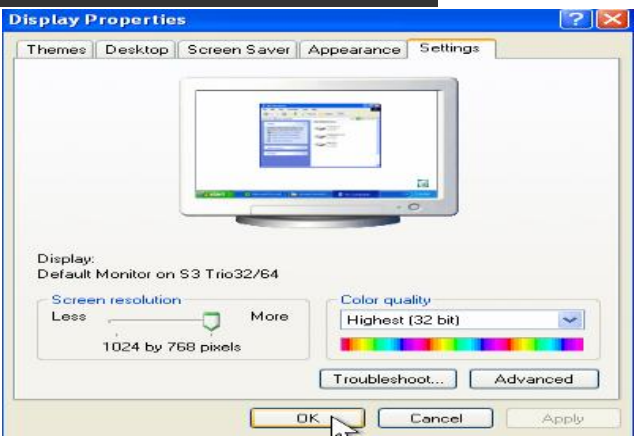


**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

# Record your DAQ data on the TracerDaq

Step1: First need confirm your display resolution，need more than 1024 by 768 pixels，after finish setting please click OK bottom！

Please Click 〔Ok〕




Step2: Click〔Start〕→ then choose〔Programs〕→〔Measurement Computing〕→〔TracerDaq〕

Step3: Configuration Name ：You can define Configuration Name，Like：USB DAQ Module setting1

Step4: Plot：You can only choose 1 Plot Click Enabled，You can chose 8 Plot，Record 8 DAQ channel signal

Step5: Signal Name：You can define Signal Name，Like：Analog Input Ch. 0 or Digital Ch. 0

Step6: Device Name：You must choose your USB DAQ module (Can not accept blank space)

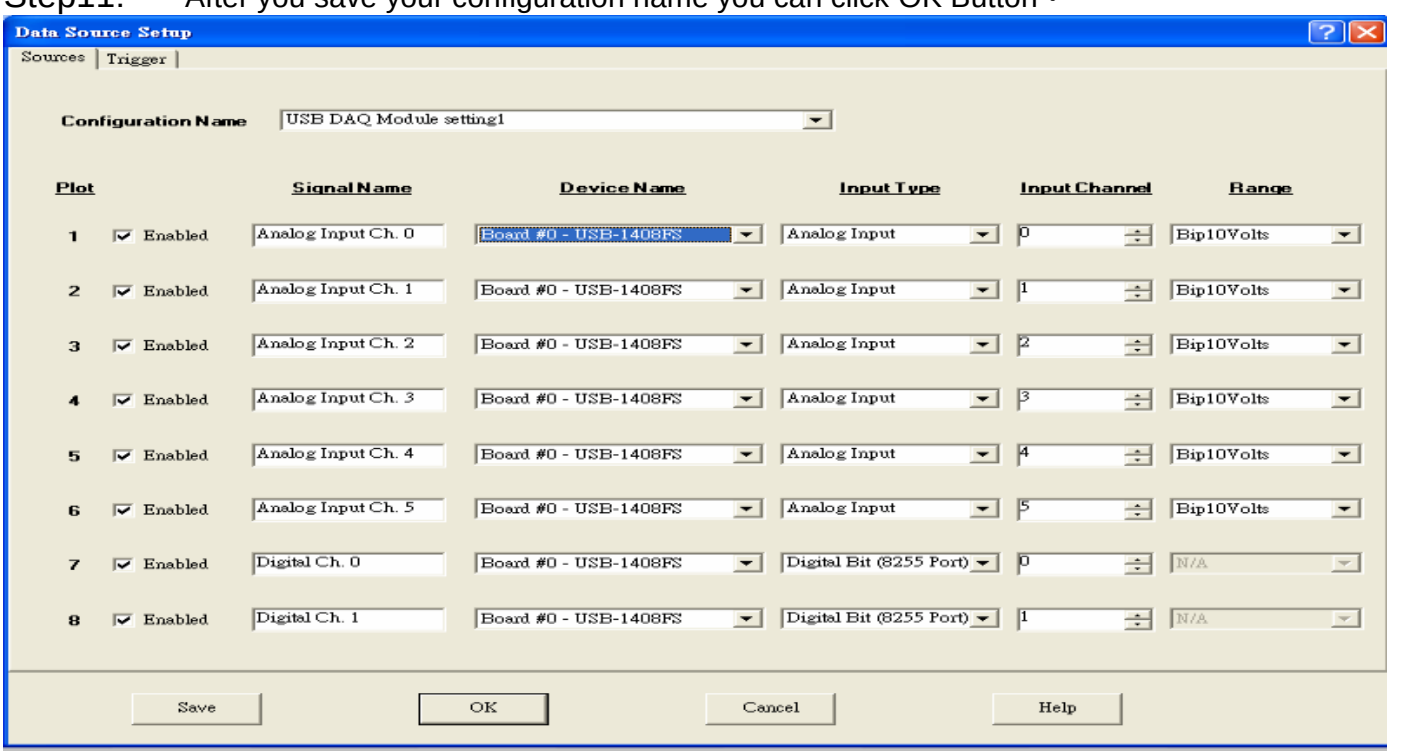
Step7: Input Type：Please choose you want to measurement Analog Input or Digital Input

Step8: Input Channel：Please choose you want to measurement Analog Input or Digital Input channel number

Step9: Range：Use to define your Analog input voltage range

Step10: After Setting Please remember click Save Button，Next time when you use TracerDaq you can select your configuration name, recall your setting。

Step11: After you save your configuration name you can click OK Button。


Data Source Setup
Sources
Trigger
Configuration Name
USB DAQ Module setting1
Plot
Signal Name
Device Name
Input Type
Input Channel
Range
1 Enabled Analog Input Ch. 0 Board #0 - USB-1408FS Analog Input 0 Bip10Volts
2 Enabled Analog Input Ch. 1 Board #0 - USB-1408FS Analog Input 1 Bip10Volts
3 Enabled Analog Input Ch. 2 Board #0 - USB-1408FS Analog Input 2 Bip10Volts
4 Enabled Analog Input Ch. 3 Board #0 - USB-1408FS Analog Input 3 Bip10Volts
5 Enabled Analog Input Ch. 4 Board #0 - USB-1408FS Analog Input 4 Bip10Volts
6 Enabled Analog Input Ch. 5 Board #0 - USB-1408FS Analog Input 5 Bip10Volts
7 Enabled Digital Ch. 0 Board #0 - USB-1408FS Digital Bit (8255 Port) 0 N/A
8 Enabled Digital Ch. 1 Board #0 - USB-1408FS Digital Bit (8255 Port) 1 N/A
Save
OK
Cancel
Help



**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

# Record your DAQ data on the TracerDaq

Step5: First please press , When the “save file option” window appear , you can choose one of three kind of file format for record DAQ data。Or you choose three of them。**(Be careful)**(If you choose three of them , It will take more time to record DAQ data)

Step6: When you choose Save Text File , you need give file path and file name , (Like C:\20071215.txt) , After that please click OK Button。

Step7: When you choose Save EXCEL File , you need give file path and file name , (Like C:\20071215.xls) , After that please click OK Button 。(you can bypass Worksheet setting , default is Sheet1)

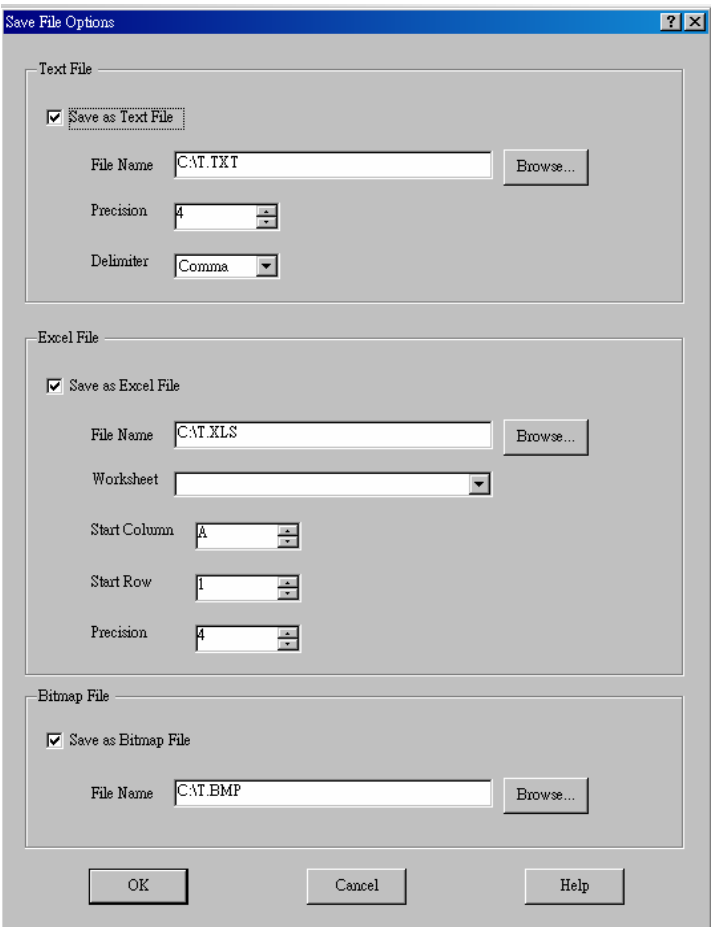
Step8: When you choose Save Bitmap File , (Like C:\20071215.BMP) , After that please click OK Button。

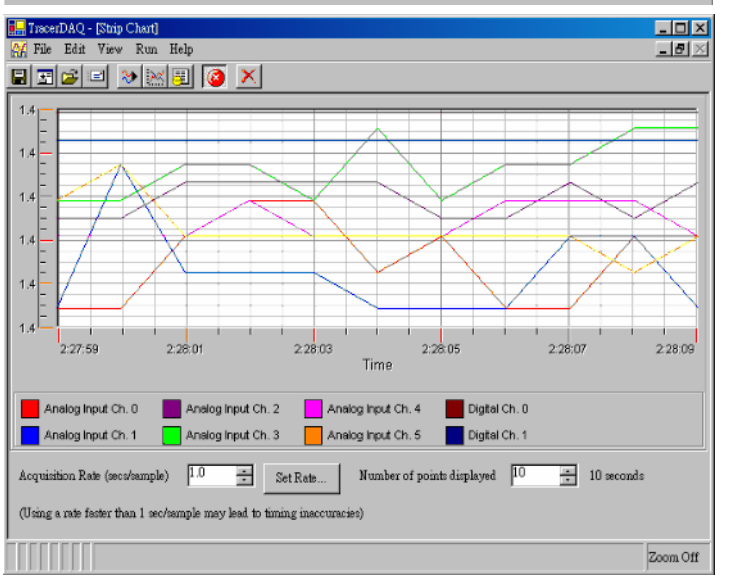
Step9: Please press Button , program will start to running。

Step10: Each Plot measurement DAQ signal data , will display by different color。

Step11: When you measurement DAQ signal , You can click button to save waveform plot。

Step12: You can click button , when you finish it。






**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

# Run Labview example program

Subject：Use DAQ kit，Test 16 Digital Output channels，control 16 LED on the DAQ development board。

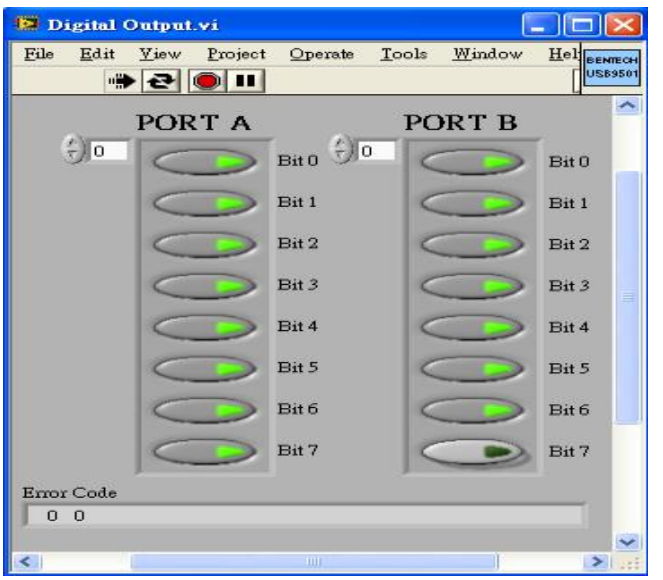
Type：Digital Output Application。

Virtual Instrument Type：DC power supply (DC 5V output)

Step1: Please copy directory \Bentech on the CD-ROM，to the c:\Bentech，Right-Click c:\Bentech directory change the read-only attributes is off。

Step2: Put the 16 Slide Switch (S0-S7) Up on the top of development board，as Digital Output，to control LED。

Step3: Run C:\Bentech\Example\Labview\Digital Output.vi，Click button，Program will start and run。Click 【Bit】Button ，The LED on the development board will ON by the【Bit】Button control。You can click button，when you finish it。



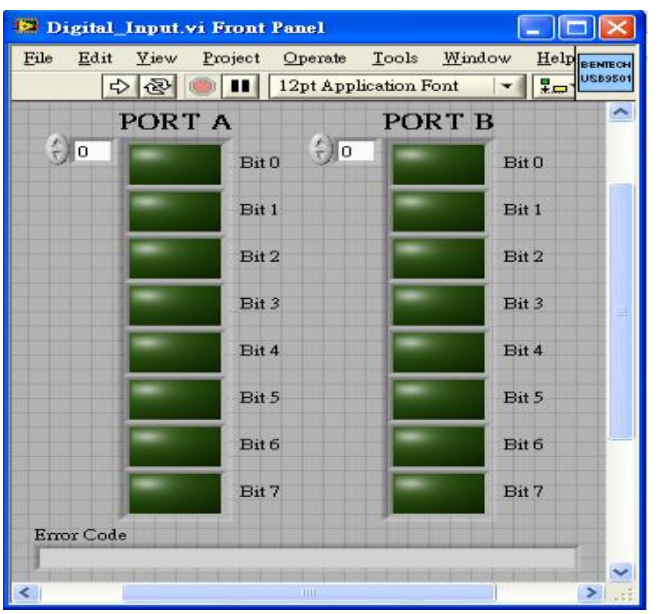

Subject：Use DAQ kit，Test 16 Digital Input channels，control 16 switch on the DAQ development board。

Type：Digital Input Application。

Virtual Instrument Type：Multi-meter (DC voltage measurement)

Step1: Put the 16 Slide Switch (S0-S7) down on the top of development board，as Digital Input，Put the 16 Slide Switch (s0-s7) Up/Down to control Digital Input High/Low。

Step2: Run C:\Bentech\Example\Labview\Digital Input.vi，Click button，Program will start and run。Put the 16 Slide Switch (s0-s7) Up/Down to control【Bit】LED on the window。You can click button，when you finish it。






**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

# Run Labview example program

Subject：Use DAQ kit，Test 8 Analog Input channels，Through PORTB 8 Digital Output channels on the DAQ development board。

Type：Analog Input Application。

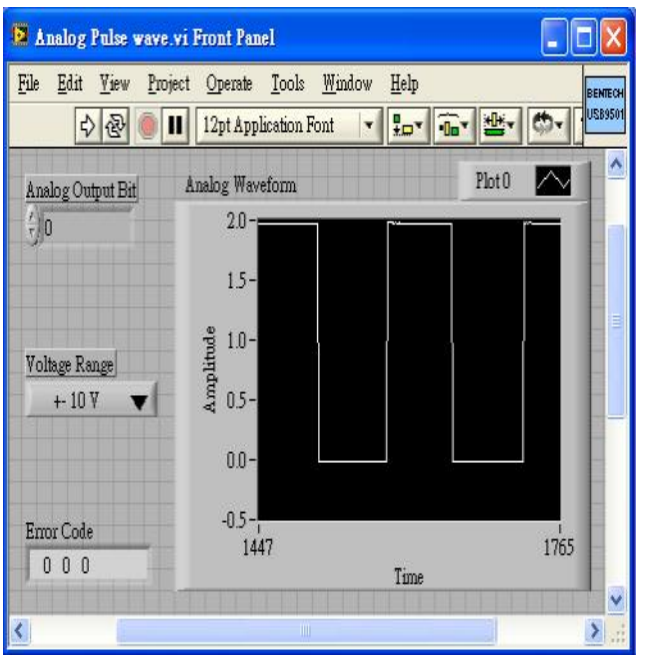
Virtual Instrument Type：Function Generator (Pulse wave output)，Oscilloscope。

Step1: Put the PORTB 8 Slide Switch (S0-S7) Up on the top-right of development board，as Digital Output，to control LED。

Step2: Put the Dip Switch (SW 1-8) On，Let Digital Output connect to the Analog Input。

Step3: Put the Dip Switch (sw 1-8) Off，Avoid Analog Output connect to the Digital Output。

Step4: Run C:\Bentech\Example\Labview\Analog Pulse wave.vi，Click button，Program will start and run。You can change【Analog Output Bit】(Bit 0-7) to control pulse wave output。The LED will blinking and follow the (Bit 0-7) change。You can click button，when you finish it。




Subject：Use DAQ kit，Test 8 Analog Input channels，Through PORTB 8 Digital Output channels on the DAQ development board。

Type：Analog Input Application。

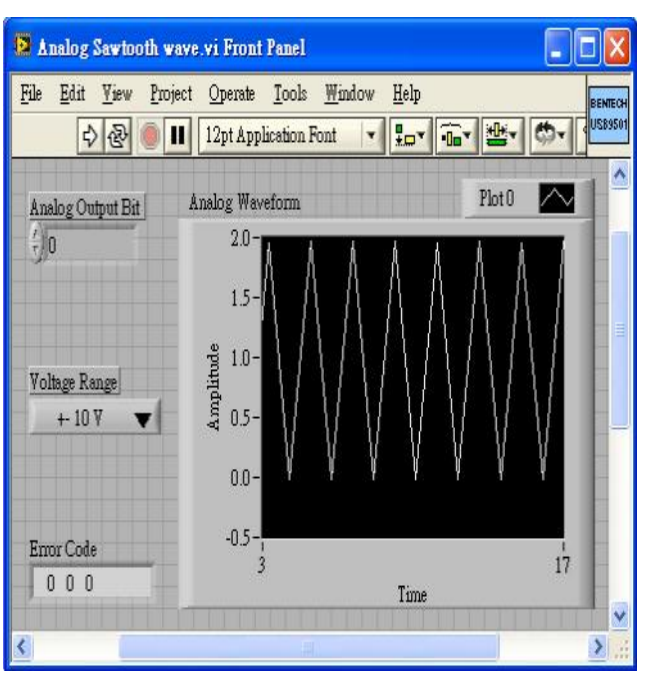
Virtual Instrument Type：Function Generator (Sawtooth wave output)，Oscilloscope。

Step1: Put the PORTB 8 Slide Switch (S0-S7) Up on the top-right of development board，as Digital Output，to control LED。

Step2: Put the Dip Switch (SW 1-8) On，Let Digital Output connect to the Analog Input。

Step3: Put the Dip Switch (sw 1-8) Off，Avoid Analog Output connect to the Digital Output。

Step4: Run C:\Bentech\Example\Labview\Analog Sawtooth wave.vi，Click button，Program will start and run。You can change【Analog Output Bit】(Bit 0-7) to control Sawtooth Wave output。The LED will blinking and follow the (Bit 0-7) change。You can click button，when you finish it。





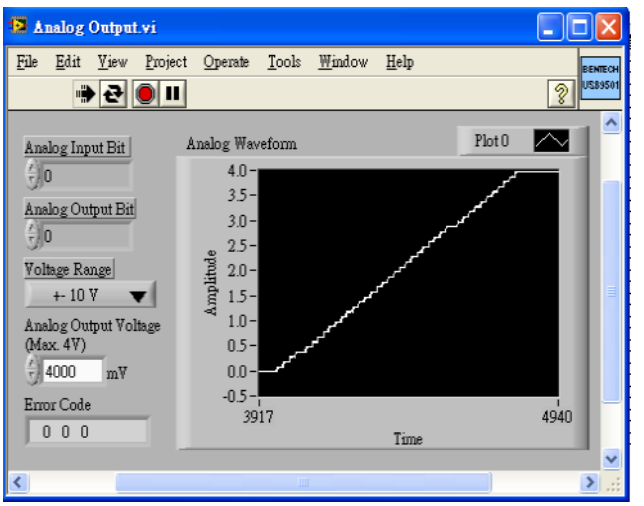

**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

# Run Labview example program

Subject：Use DAQ kit，Test 8 Analog Input channels，Through AS 2 Analog Output channels on the DAQ development board。

Type：Analog Input Application。

Virtual Instrument Type：DC power supply，Oscilloscope。




Step1: Put the Dip Switch (SW 1-8) Off，Avoid Analog Output connect to the Digital Output。

Step2: Put the Dip Switch (sw 1-8) On，Let Analog Output connect to the Analog Input。

Step3: Put Slide Switch (AS) (horizontal) to the left (A0)(Analog Output Bit 0)，or right (A1)(Analog Output Bit 1)。

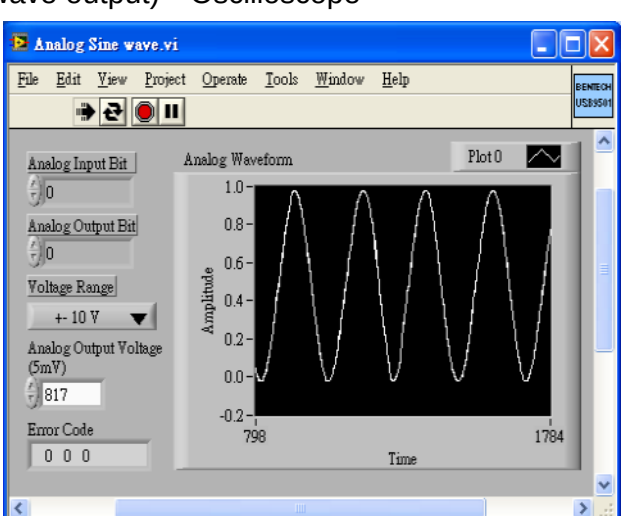
Step4: When you change Slide Switch (AS) (horizontal) (A0 or A1)，You must change the 【Analog Output Bit】(Bit 0-1) on the window too。

Step5: Run C:\Bentech\Example\Labview\Analog Output.vi，Click button，Program will start and run。You can change【Analog Output Voltage】to control Analog Output voltage。You can click button，when you finish it。

Subject：Use DAQ kit，Test 8 Analog Input channels，Through AS 2 Analog Output channels on the DAQ development board。

Type：Analog Input Application。

Virtual Instrument Type：Function Generator (Sine wave output)，Oscilloscope。




Step1: Put the Dip Switch (SW 1-8) Off，Avoid Analog Output connect to the Digital Output。

Step2: Put the Dip Switch (sw 1-8) On，Let Analog Output connect to the Analog Input。

Step3: Put Slide Switch (AS) (horizontal) to the left (A0)(Analog Output Bit 0)，or right (A1)(Analog Output Bit 1)。

Step4: When you change Slide Switch (AS) (horizontal) (A0 or A1)，You must change the 【Analog Output Bit】(Bit 0-1) on the window too。

Step5: Run C:\Bentech\Example\Labview\Analog Sine wave.vi，Click button，Program will start and run。The 【Analog Output Voltage】 will follow Sine function to generate Analog Output voltage. Each Sine wave will divide into 128 parts)。You can click button，when you finish it。



**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

# Run SoftWIRE example program by Visual C#

Subject：Use DAQ kit，Test 16 Digital Output channels，control 16 LED on the DAQ development board。

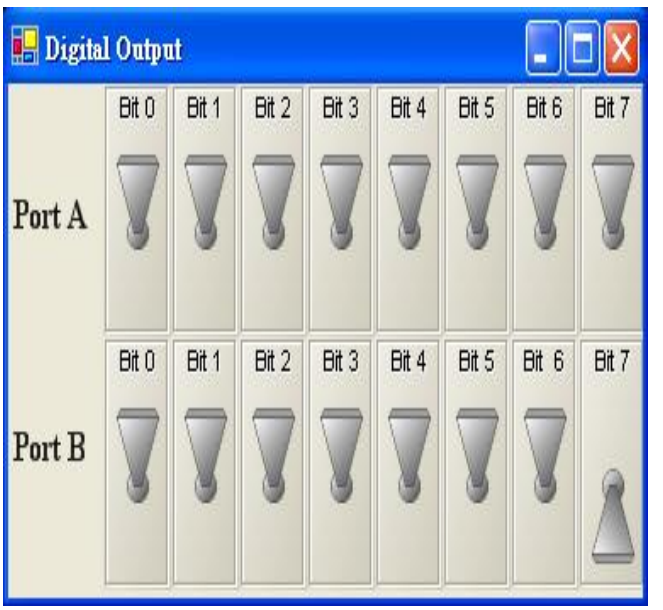
Type：Digital Output Application。

Virtual Instrument Type：DC power supply (DC 5V output)

Step1: Please copy directory \Bentech on the CD-ROM，to the c:\Bentech，Right-Click c:\Bentech directory change the read-only attributes is off。

Step2: Put the 16 Slide Switch (S0-S7) Up on the top of development board，as Digital Output，to control LED。

Step3: Run C:\Bentech\Example\\SoftWIRE\Visual C#\Digital Output\Digital Output.csproj，Click button，Program will start and run。Click 【Bit】Button ，The LED on the development board will ON by the【Bit】Button control。You can click button，when you finish it。



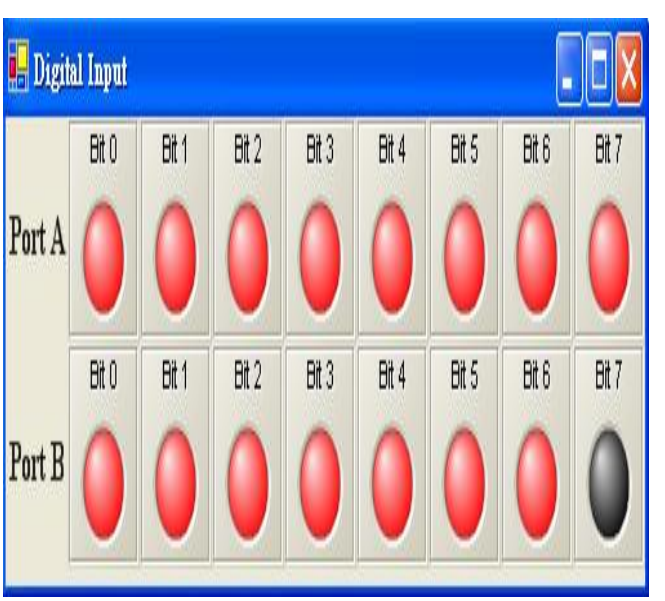

Subject：Use DAQ kit，Test 16 Digital Input channels，control 16 switch on the DAQ development board。

Type：Digital Input Application。

Virtual Instrument Type：Multi-meter (DC voltage measurement)

Step1: Put the 16 Slide Switch (S0-S7) down on the top of development board，as Digital Input，Put the 16 Slide Switch (s0-s7) Up/Down to control Digital Input High/Low。

Step2: Run C:\Bentech\Example\\SoftWIRE\Visual C#\Digital Input\Digital Input.csproj，Click button，Program will start and run。Put the 16 Slide Switch (s0-s7) Up/Down to control【Bit】LED on the window。You can click button，when you finish it。






**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

# Run SoftWIRE example program by Visual C#

Subject：Use DAQ kit，Test 8 Analog Input channels，Through PORTB 8 Digital Output channels on the DAQ development board。

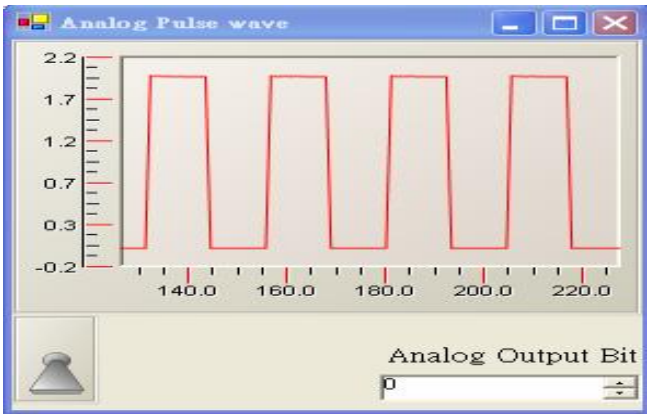
Type：Analog Input Application。

Virtual Instrument Type：Function Generator (Pulse wave output)，Oscilloscope。

Step1: Put the PORTB 8 Slide Switch (S0-S7) Up on the top-right of development board，as Digital Output，to control LED。

Step2: Put the Dip Switch (SW 1-8) On，Let Digital Output connect to the Analog Input。

Step3: Put the Dip Switch (sw 1-8) Off，Avoid Analog Output connect to the Digital Output。




Step4: Run C:\Bentech\Example\SoftWIRE\Visual C#\Analog Pulse wave\Analog Pulse wave.csproj，Click button，Program will start and run。You can change 【Analog Output Bit】(Bit 0-7) to control pulse wave output。The LED will blinking and follow the (Bit 0-7) change。You can click button，when you finish it。

Subject：Use DAQ kit，Test 8 Analog Input channels，Through PORTB 8 Digital Output channels on the DAQ development board。

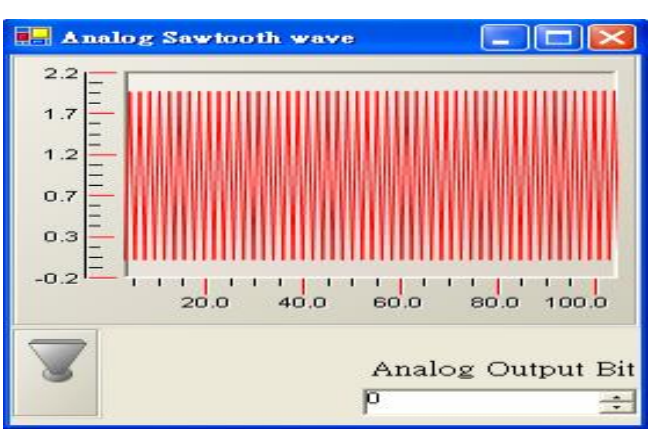
Type：Analog Input Application。

Virtual Instrument Type：Function Generator (Sawtooth wave output)，Oscilloscope。

Step1: Put the PORTB 8 Slide Switch (S0-S7) Up on the top-right of development board，as Digital Output，to control LED。

Step2: Put the Dip Switch (SW 1-8) On，Let Digital Output connect to the Analog Input。

Step3: Put the Dip Switch (sw 1-8) Off，Avoid Analog Output connect to the Digital Output。




Step4: Run C:\Bentech\Example\SoftWIRE\Visual C#\Analog Sawtooth wave\Analog Sawtooth wave.csproj，Click button，Program will start and run。You can change 【Analog Output Bit】(Bit 0-7) to control Sawtooth Wave output。The LED will blinking and follow the (Bit 0-7) change。You can click button when you finish it。



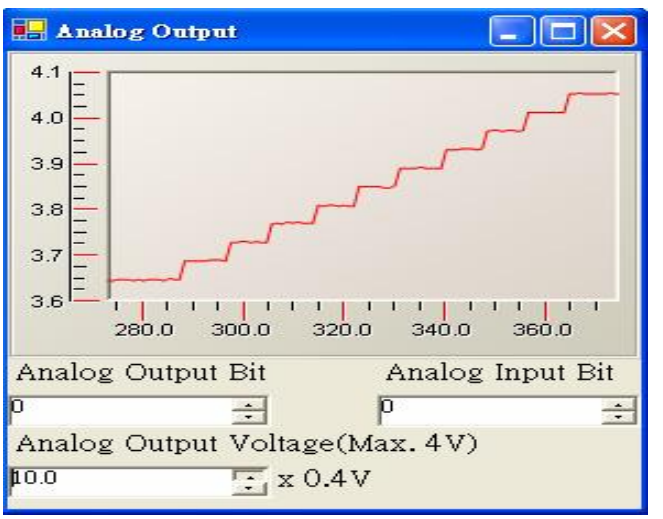
**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

# Run SoftWIRE example program by Visual C#

Subject：Use DAQ kit，Test 8 Analog Input channels，Through AS 2 Analog Output channels on the DAQ development board。

Type：Analog Input Application。

Virtual Instrument Type：DC power supply，Oscilloscope。




Step1: Put the Dip Switch (SW 1-8) Off，Avoid Analog Output connect to the Digital Output。

Step2: Put the Dip Switch (sw 1-8) On，Let Analog Output connect to the Analog Input。

Step3: Put Slide Switch (AS) (horizontal) to the left (A0)(Analog Output Bit 0)，or right (A1)(Analog Output Bit 1)。

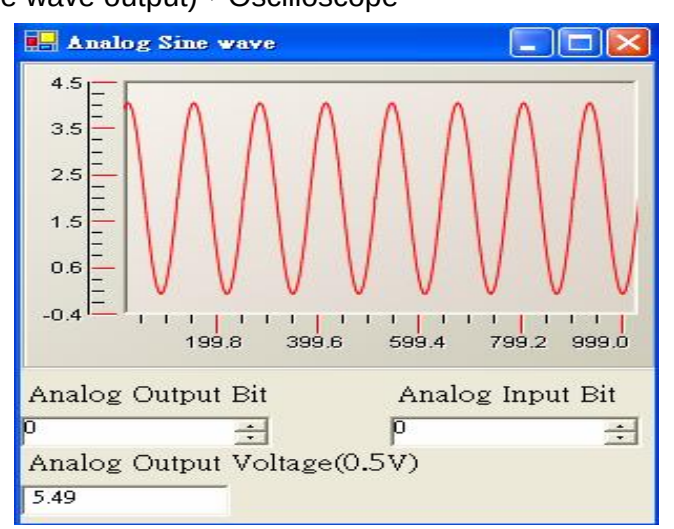
Step4: When you change Slide Switch (AS) (horizontal) (A0 or A1)，You must change the【Analog Output Bit】(Bit 0-1) on the window too。

Step5: Run C:\Bentech\Example\SoftWIRE\Visual C#\Analog Output\Analog Output.csproj，Click button，Program will start and run。You can change 【Analog Output Voltage】to control Analog Output voltage。You can click button，when you finish it。

Subject：Use DAQ kit，Test 8 Analog Input channels，Through AS 2 Analog Output channels on the DAQ development board。

Type：Analog Input Application。

Virtual Instrument Type：Function Generator (Sine wave output)，Oscilloscope。




Step1: Put the Dip Switch (SW 1-8) Off，Avoid Analog Output connect to the Digital Output。

Step2: Put the Dip Switch (sw 1-8) On，Let Analog Output connect to the Analog Input。

Step3: Put Slide Switch (AS) (horizontal) to the left (A0)(Analog Output Bit 0)，or right (A1)(Analog Output Bit 1)。

Step4: When you change Slide Switch (AS) (horizontal) (A0 or A1)，You must change the【Analog Output Bit】(Bit 0-1) on the window too。

Step5: Run C:\Bentech\\SoftWIRE\Visual C#\Analog Sine wave\Analog Sine wave.csproj，Click button，Program will start and run。The 【Analog Output Voltage】 will follow Sine function to generate Analog Output voltage. Each Sine wave will divide into 128 parts)。 You can click button，when you finish it。



**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

## Run SoftWIRE example program by Visual Basic

Subject：Use DAQ kit，Test 16 Digital Output channels，control 16 LED on the DAQ development board。

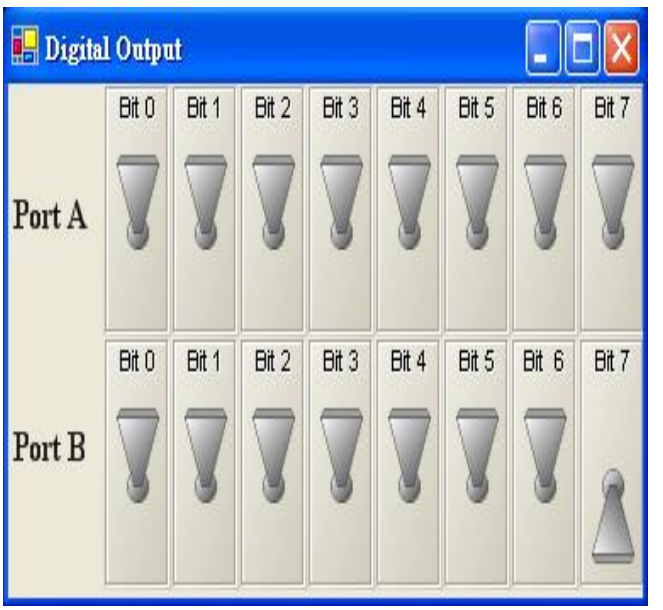
Type：Digital Output Application。

Virtual Instrument Type：DC power supply (DC 5V output)

Step1: Please copy directory \Bentech on the CD-ROM，to the c:\Bentech，Right-Click c:\Bentech directory change the read-only attributes is off。

Step2: Put the 16 Slide Switch (S0-S7) Up on the top of development board，as Digital Output，to control LED。

Step3: Run C:\Bentech\Example\\SoftWIRE\Visual Basic\Digital Output\Digital Output.vbproj，Click button，Program will start and run。Click 【Bit】Button ，The LED on the development board will ON by the【Bit】Button control。You can click button，when you finish it。



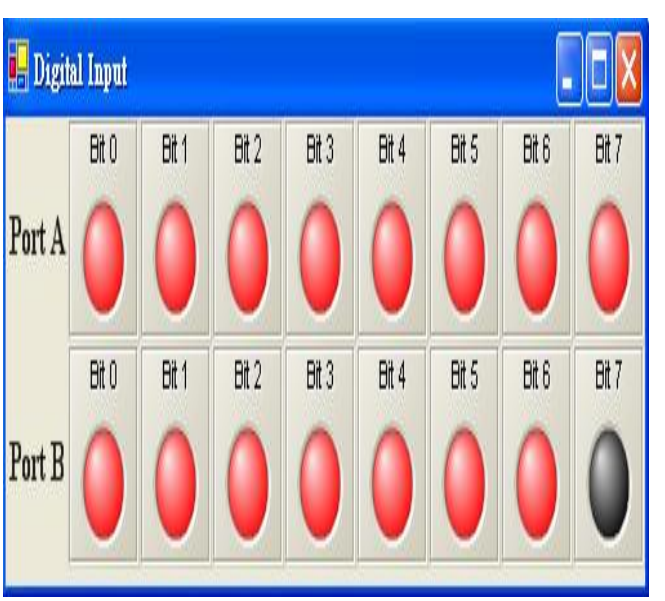

Subject：Use DAQ kit，Test 16 Digital Input channels，control 16 switch on the DAQ development board。

Type：Digital Input Application。

Virtual Instrument Type：Multi-meter (DC voltage measurement)

Step1: Put the 16 Slide Switch (S0-S7) down on the top of development board，as Digital Input，Put the 16 Slide Switch (s0-s7) Up/Down to control Digital Input High/Low。

Step2: Run C:\Bentech\Example\\SoftWIRE\Visual Basic\Digital Input\Digital Input.vbproj，Click button，Program will start and run。Put the 16 Slide Switch (s0-s7) Up/Down to control【Bit】LED on the window。You can click button，when you finish it。






**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

# Run SoftWIRE example program by Visual Basic

Subject：Use DAQ kit，Test 8 Analog Input channels，Through PORTB 8 Digital Output channels on the DAQ development board。

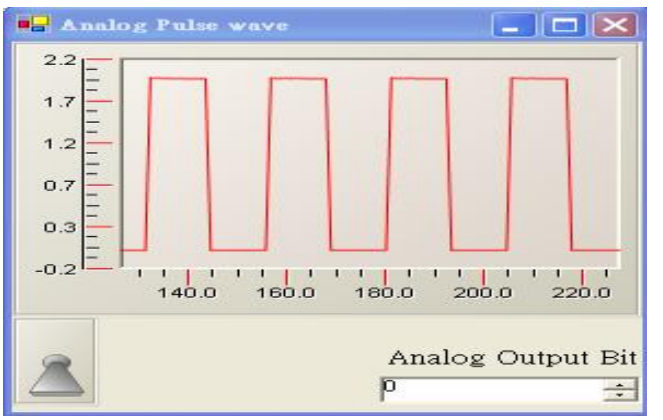
Type：Analog Input Application。

Virtual Instrument Type：Function Generator (Pulse wave output)，Oscilloscope。

Step1: Put the PORTB 8 Slide Switch (S0-S7) Up on the top-right of development board，as Digital Output，to control LED。

Step2: Put the Dip Switch (SW 1-8) On，Let Digital Output connect to the Analog Input。

Step3: Put the Dip Switch (sw 1-8) Off，Avoid Analog Output connect to the Digital Output。




Step4: Run C:\Bentech\Example\SoftWIRE\Visual Basic\Analog Pulse wave\Analog Pulse wave.vbproj，Click button，Program will start and run。You can change 【Analog Output Bit】(Bit 0-7) to control pulse wave output。The LED will blinking and follow the (Bit 0-7) change。You can click button，when you finish it。

Subject：Use DAQ kit，Test 8 Analog Input channels，Through PORTB 8 Digital Output channels on the DAQ development board。

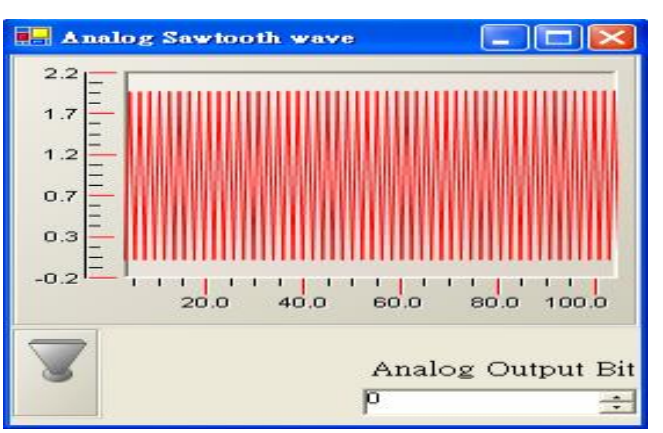
Type：Analog Input Application。

Virtual Instrument Type：Function Generator (Sawtooth wave output)，Oscilloscope。

Step1: Put the PORTB 8 Slide Switch (S0-S7) Up on the top-right of development board，as Digital Output，to control LED。

Step2: Put the Dip Switch (SW 1-8) On，Let Digital Output connect to the Analog Input。

Step3: Put the Dip Switch (sw 1-8) Off，Avoid Analog Output connect to the Digital Output。




Step4: Run C:\Bentech\Example\SoftWIRE\Visual Basic\Analog Sawtooth wave\Analog Sawtooth wave.vbproj，Click button，Program will start and run。You can change 【Analog Output Bit】(Bit 0-7) to control Sawtooth Wave output。The LED will blinking and follow the (Bit 0-7) change。You can click button when you finish it。



**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

# Run SoftWIRE example program by Visual Basic

Subject：Use DAQ kit，Test 8 Analog Input channels，Through AS 2 Analog Output channels on the DAQ development board。

Type：Analog Input Application。

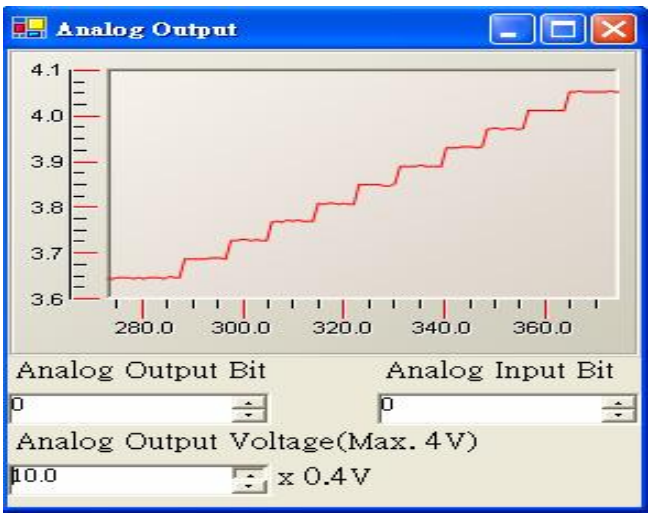
Virtual Instrument Type：DC power supply，Oscilloscope。

Step1: Put the Dip Switch (SW 1-8) Off，Avoid Analog Output connect to the Digital Output。

Step2: Put the Dip Switch (sw 1-8) On，Let Analog Output connect to the Analog Input。

Step3: Put Slide Switch (AS) (horizontal) to the left (A0)(Analog Output Bit 0)，or right (A1)(Analog Output Bit 1)。

Step4: When you change Slide Switch (AS) (horizontal) (A0 or A1)，You must change the【Analog Output Bit】(Bit 0-1) on the window too。




Step5: Run C:\Bentech\Example\SoftWIRE\Visual Basic\Analog Output\Analog Output.vbproj，Click button，Program will start and run。You can change 【Analog Output Voltage】 to control Analog Output voltage。You can click button，when you finish it。

Subject：Use DAQ kit，Test 8 Analog Input channels，Through AS 2 Analog Output channels on the DAQ development board。

Type：Analog Input Application。

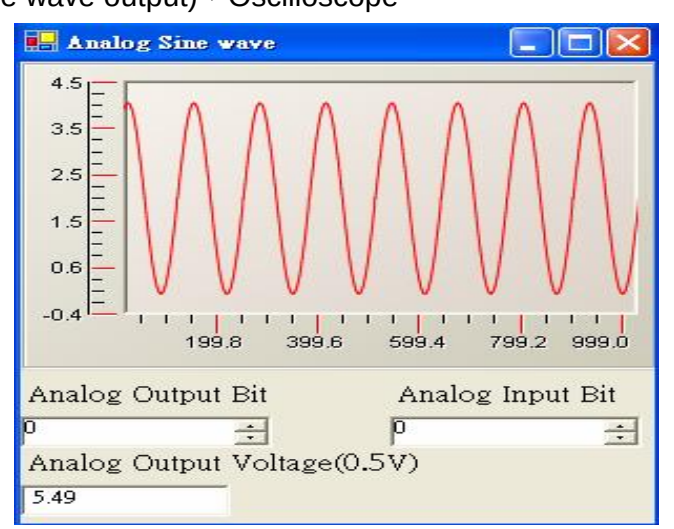
Virtual Instrument Type：Function Generator (Sine wave output)，Oscilloscope。

Step1: Put the Dip Switch (SW 1-8) Off，Avoid Analog Output connect to the Digital Output。

Step2: Put the Dip Switch (sw 1-8) On，Let Analog Output connect to the Analog Input。

Step3: Put Slide Switch (AS) (horizontal) to the left (A0)(Analog Output Bit 0)，or right (A1)(Analog Output Bit 1)。

Step4: When you change Slide Switch (AS) (horizontal) (A0 or A1)，You must change the【Analog Output Bit】(Bit 0-1) on the window too。




Step5: Run C:\Bentech\\SoftWIRE\Visual Basic\Analog Sine wave\Analog Sine wave.vbproj，Click button，Program will start and run。The 【Analog Output Voltage】 will follow Sine function to generate Analog Output voltage. Each Sine wave will divide into 128 parts)。You can click button，when you finish it。

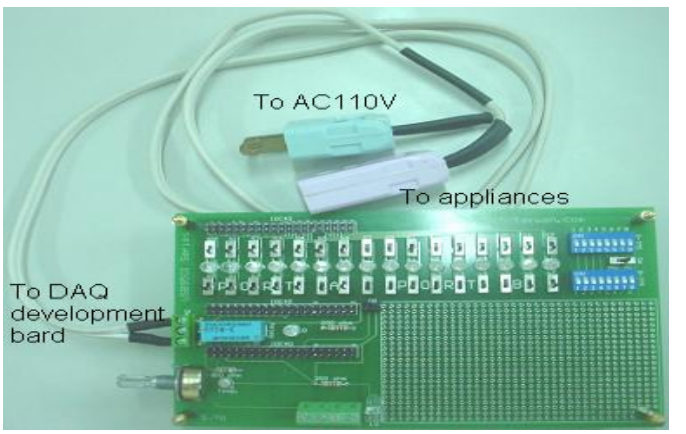


**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

# USB9501-12 DAQ Kit Application Example 1

Subject：Use DAQ kit，Control AC110V。
Type：Digital Output Application。
Virtual Instrument Type：DC power supply(DC 5V output)

Caution : You might be electric shock
Before Use，Please connect AC wire to the DAQ development board，Last connect to the AC110 outlet。
After Use，Remove AC110plug from outlet first，Last Remove AC wire from the DAQ development board。

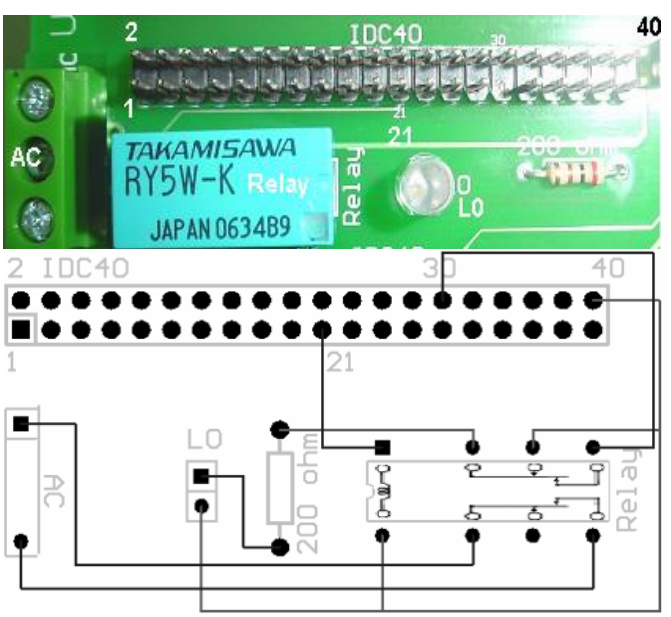


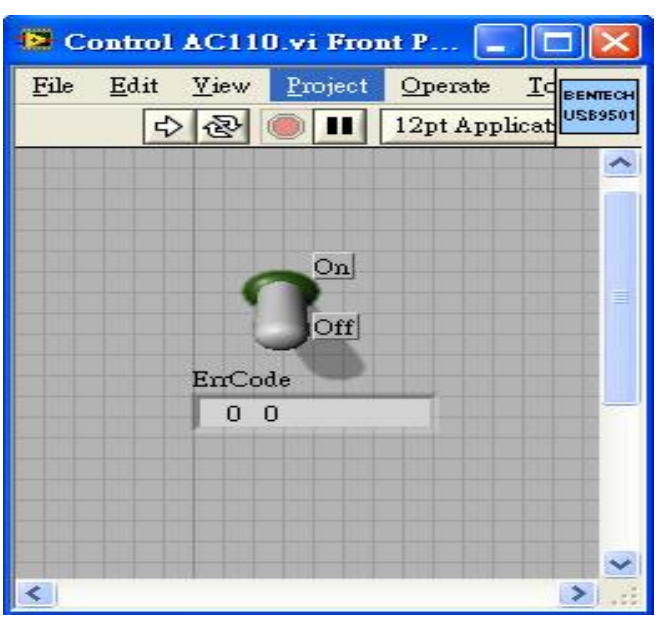

Step1: Choose component that you need， In this example choose Relay and LED。

Step2: Choose Pin that you need，In this example choose Pin is:
PIN 21:Digital Output 0
PIN30: PC +5V， PIN 40: GND

Step3: Relay is controlled by Digital Output，Use PIN 21 as the Digital Output，Use (Control AC110.vi / .csproj / .vbproj)
（PS.： LED is use to display Relay status，connect to VCC and GND)

Step4: This example can use on appliances，as AC110 switch controlled by PC（**Caution**：AC Voltage 110V， High power appliances can't use on this example，Like hairdryer，hot-water heater ..etc，This RELAY Max power is 24W）




| Component | Circuit pos. | Function | Q'ty |
|---|---|---|---|
| LED | L0 | Use to Check Relay function | 1 |
| 200 ohm Resistor | 200 ohm | Use protect LED short | 1 |
| 3 way screw terminal | AC | Connect to AC110V | 1 |
| Relay | Relay | Through Digital Output Bit 0 DC5V control AC110V | 1 |
| 40 PIN Header | IDC40 | Connect USB DAQ module signal PIN 1~40 | 1 |

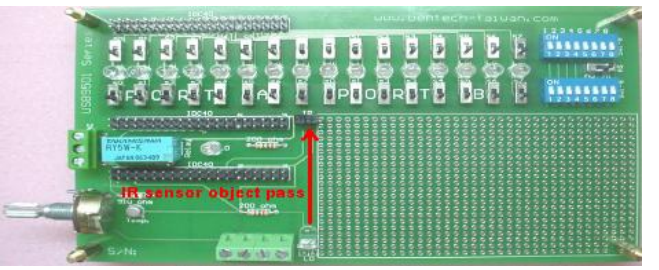


**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

# USB9501-12 DAQ Kit Application Example 2

Subject：Use DAQ kit，IR sensor object pass。
Type：Analog Input Application。
Virtual Instrument Type：DC power supply(DC 5V output)，Oscilloscope。

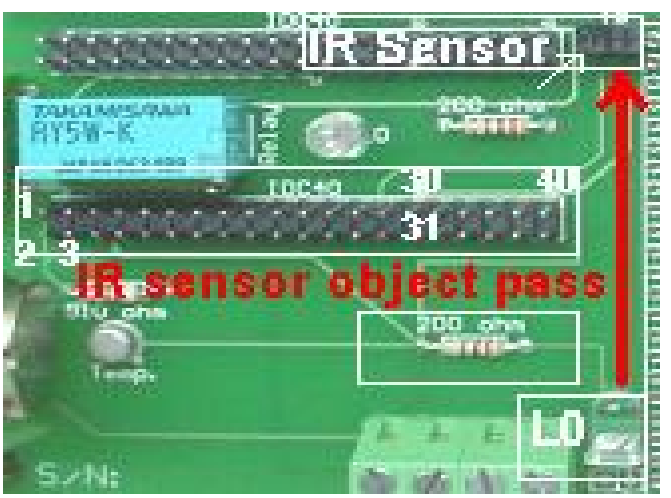
Step1: Choose component that you need， In this example choose IR sensor。

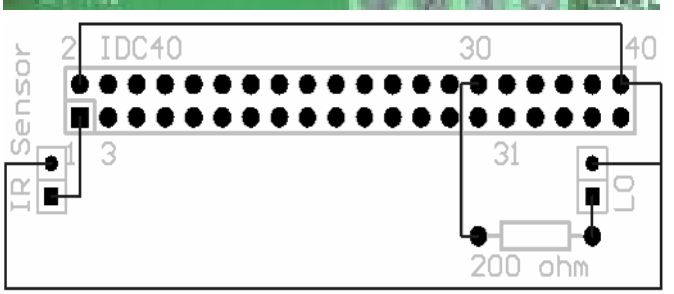


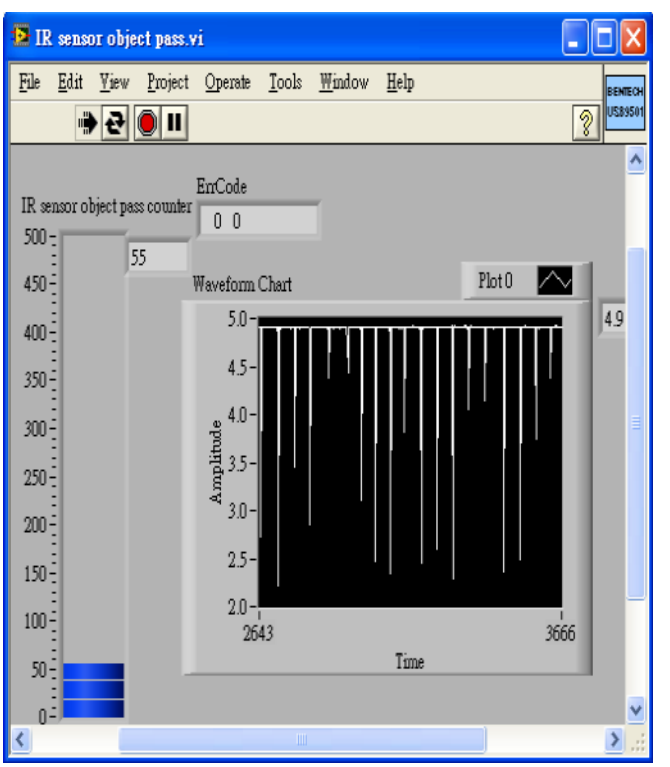

Step2: Choose Pin that you need，In this example choose Pin is:
PIN 1: CH0 IN ， PIN 3: AGND，
PIN30: PC +5V， PIN 31: GND，
PIN 40: GND

Step3: IR sensor is connect to Analog Input，Use (IR sensor object pass.vi / .csproj / .vbproj)，(PS: When object pass(IR cut off)，IR sensor object pass counter will increase，time delay default is 200ms，use to avoid one object pass But multi counted)

Step4: This example can use on factory automation




| Component | Circuit pos. | Function | Q'ty |
|---|---|---|---|
| LED | L0 | Use To generate IR light | 1 |
| 200 ohm resistor | 200 ohm | Use protect LED short | 1 |
| IR sensor | IR Sensor | Through Analog Input Bit 0 detect object pass through | 1 |
| 40 PIN Header | IDC40 | Connect USB DAQ module signal PIN 1~40 | 1 |



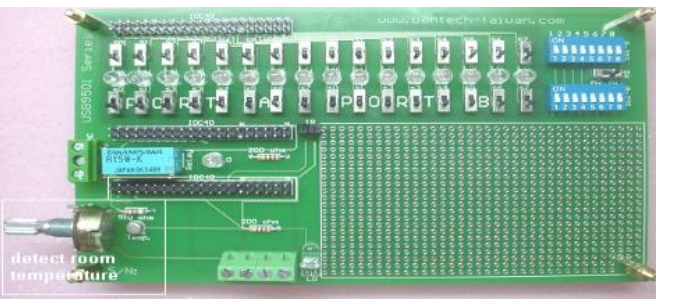
**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

# USB9501-12 DAQ Kit Application Example 3

Subject：Use DAQ kit，detect room temperature。
Type：Analog Input Application。
Virtual Instrument Type：DC power supply(DC 5V output)，Multi-Meter (DC current measurement)。

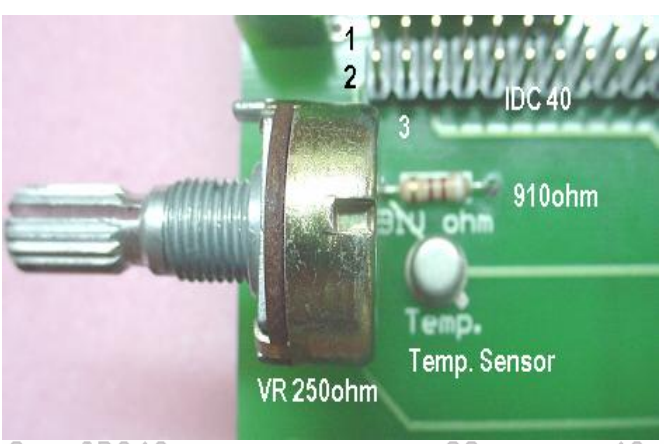
Step1: Choose component that you need， In this example choose temperature sensor。(DC current output)

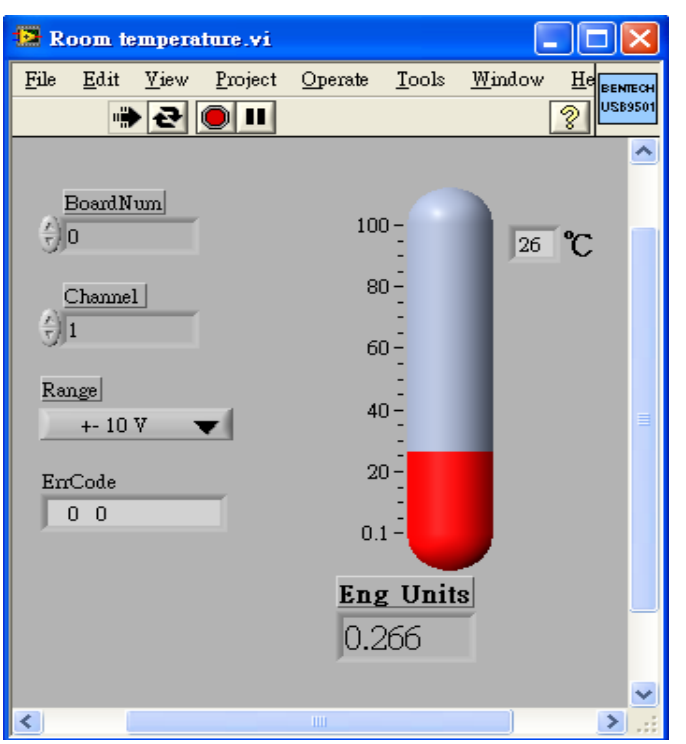
Step2: Choose Pin that you need，In this example choose Pin is:
PIN 2: CH1 IN ，PIN 3: AGND
PIN30: PC +5V， PIN 40: GND




Step3: temperature sensor is DC current output ，It will need add 910Ω resistor and 250Ω variable resistor ，transform current value to be the voltage value (V=I*R)，Then DAQ module will take the voltage vale as the temperature value。The 250Ω variable resistor as the temperature adjust，It use (Room temperature.vi / .csproj / .vbproj)

Step4: This example can use on room temperature。




| Component | Circuit pos. | Function | Q'ty |
|---|---|---|---|
| Temp. sensor | Temp. sensor | Through Analog Input Bit 1 detect room temperature | 1 |
| 40 PIN Header | IDC40 | Connect USB DAQ module signal PIN 1~40 | 1 |
| 910 ohm resistor | 910 ohm | Use transform temp. sensor current to be voltage | 1 |
| VR 250 ohm | VR 250 ohm | Use to adjust temperature (Fix current x variable resistor) | 1 |



**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

# USB9501-12 DAQ Kit Application Example 4

Subject：Use DAQ kit，measurement resistor value。
Type：Analog Input Application。
Virtual Instrument Type：DC power supply(DC 5V output)，Multi-Meter (Resistor measurement)。

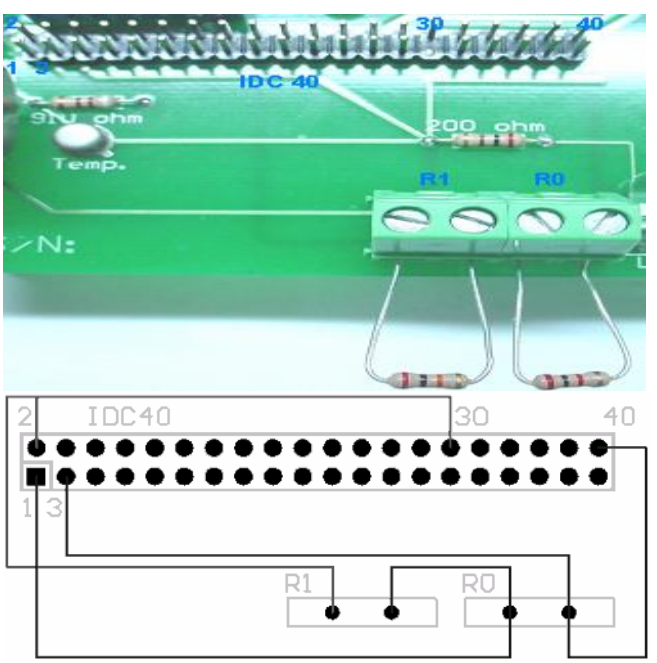
Step1: Choose component that you need， In this example choose resistor。

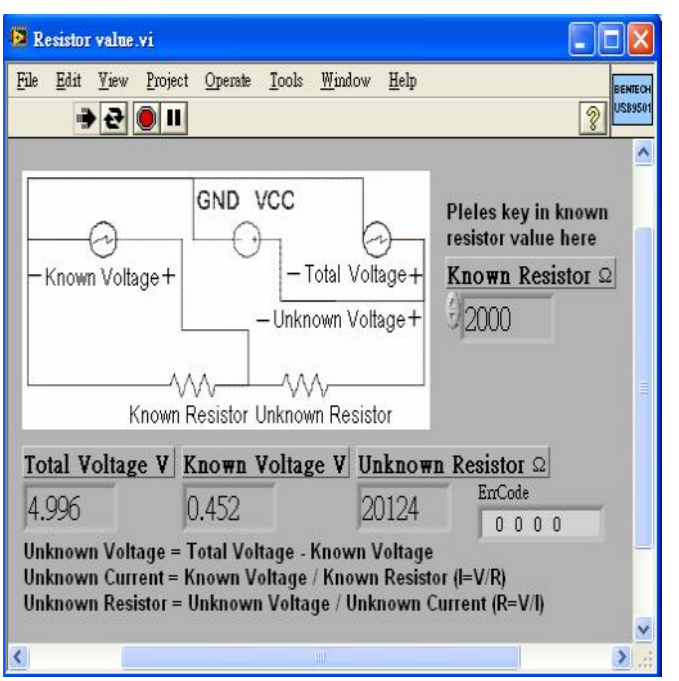
Step2: Choose Pin that you need，In this example choose Pin is:
PIN 1: CH0 IN ，PIN 2: AGND
PIN 3: CH1 IN ，PIN 4: AGND
PIN30: PC +5V， PIN 40: GND

Step3: Put known resistor to R0，Put unknown resistor to R1。

Step4: Use resistor voltage divide，from known resistor value，get unknown resistor value，Use (Resistor value.vi / .csproj / .vbproj)

Step5: This example can use to understand how the Multi-Meter works，and Ohm's law R=V/I formula， use different known value resistor，can measurement different unknown value resister by different range。




| Component | Circuit pos. | Function | Q'ty |
|---|---|---|---|
| Resistor | R0 | Use to choose known resistor range 200Ω，2KΩ，20KΩ | 3 |
| 2 way screw terminal | R0 | Connect to unknown resistor | 1 |
| 2 way screw terminal | R1 | Connect to known resistor | 1 |
| 40 PIN Header | IDC40 | Connect USB DAQ module signal PIN 1~40 | 1 |



**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

# USB9501-12 DAQ Kit Application Example 5

Subject：Use DAQ kit，control AC110V by Use voice

Type：Digital Output Application。

Virtual Instrument Type：DC power supply(DC 5V output)

Caution : You might be electric shock

Before Use，Please connect AC wire to the DAQ development board，Last connect to the AC110 outlet。

After Use，Remove AC110plug from outlet first，Last Remove AC wire from the DAQ development board。

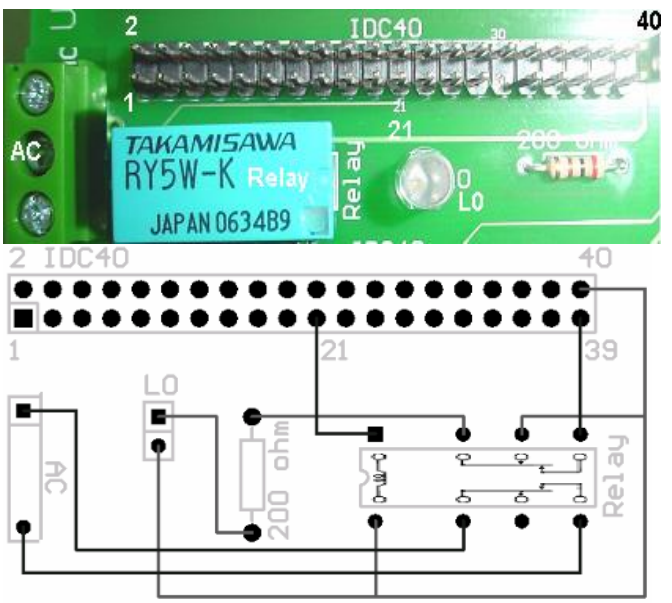
Step1: Choose component that you need， In this example choose Relay and LED。

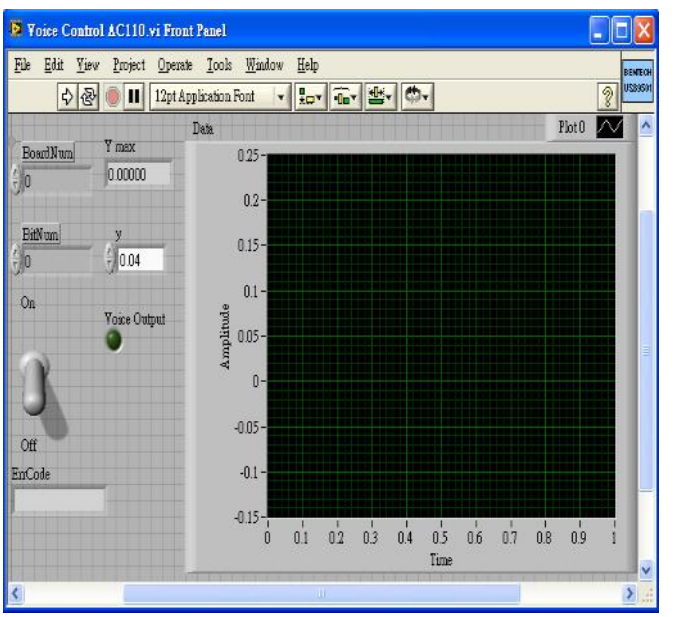
Step2: Choose Pin that you need，In this example choose Pin is:
PIN 21:Digital Output 0
PIN30: PC +5V， PIN 40: GND

Step3: Relay is controlled by Digital Output，Use PIN 21 as the Digital Output，

Step4: Use (Voice Control AC110.vi)（PS.：LED is use to display Relay status，connect to VCC and GND)

Step5: This example can use on appliances，as AC110 switch controlled by PC（**Caution**：AC Voltage 110V， High power appliances can't use on this example，Like hairdryer，hot-water heater ..etc，This RELAY Max power is 24W）




| Component | Circuit pos. | Function | Q'ty |
|---|---|---|---|
| LED | L0 | Use to Check Relay function | 1 |
| 200 ohm Resistor | 200 ohm | Use protect LED short | 1 |
| 3 way screw terminal | AC | Connect to AC110V | 1 |
| Relay | Relay | Through Digital Output Bit 0 DC5V control AC110V | 1 |
| 40 PIN Header | IDC40 | Connect USB DAQ module signal PIN 1~40 | 1 |



**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com

# Trademarks

Microsoft® Visual Basic®、 Visual C/C++® and .NET® are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

MATLAB® is registered trademarks or trademarks of MathWorks Corporation in the United States and/or other countries.

LABVIEW® is registered trademarks or trademarks of National Instrument Corporation in the United States and/or other countries.

TracerDaq®、InstaCal®、UNIVERSAL LIBRARY®、UNIVERSAL LIBRARY for Labview®、Softwire®、USB DAQ module® H/W & S/W are registered trademarks or trademarks of Measurement Computing Corporation in the United States and/or other countries.

## USB9501-14 DAQ module

- USB 2.0 interface
- Eight single-ended 13-bit analog input A/D, 48kS/s
- Or four differential 14-bit analog input A/D, 48kS/s
- Two 12-bit analog outputs D/A
- 16 digital input or 16 digital output

## USB9501-14 DAQ Kits

- DAQ development board and BOM
- DAQ development board circuit
- DAQ development board components
- Bare development board
- VB,VC, Boland C example & source code
- Microsoft .NET 2003 example & source code
- LABVIEW example & source code
- TracerDaq function, display and record DAQ data
- InstalCal function, display DAQ data
- Matlab support, write your mathematical model today
- Support Microsoft .NET 2005 (Option)
- Support Excel Wizard (Option)
- Support DasyLab (Option))
- One year warranty
  (Excluded components on DAQ development board)
- User Manual

Reserve the right to change the design and. specification without notice。



**Bentech Computer Corp.** 7F-3, NO.23, LANE 169, KANG-NING ST., HIS-CHIH, TAIPEI HSIEN, TAIWAN, R.O.C.
FAX：（886）02-26958911 TEL.:（886）02-26958906 Web Site www.bentech-taiwan.com